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COURSE OF LECTURES
ON THE
PHYSIOLOGY AND PATHOLOGY OF THE BLOOD,
AND
THE OTHER ANIMAL FLUIDS,
DELIVERED IN THE SESSION OF 1839-40,
AT THE
School of Anatomy adjoining St. George's Hospital,

BY HENRY ANCELL, ESQ., SURGEON.

LECTURE XI.

The gases of the blood liable to excess and deficiency.—Heat of the blood; its connection with respiration; not produced altogether in the lungs; its source.—Animal heat; theories of; influence of the nerves upon.—Heat of the blood in diseases.—Causes which interrupt the respiratory changes of the blood.

GENTLEMEN:—The knowledge we possess respecting the influence of the air upon blood is entirely attributable to the moderns, and we are especially indebted to Goodwin and Bichat for the earliest correct notions, which led the way to further discoveries. The former proved that blood which has not undergone the respiratory changes, becomes black, and the latter applied the chemical discoveries of Lavoisier and Fourcroy in explanation of this fact. I have already shown that the conversion from the venous to the arterial character is a complex vital operation, as respects the blood, involving complex physical and chemical phenomena, as respects the air; and it is most important to know that the process is liable to various modifications, from the action of morbific causes, although at present it cannot be said that we have more than a glimpse at their nature and extent. The word *asphyxia*, as now employed, includes many of those diseases of the blood, yet not all, and it applies more particularly to an arrest of the respiratory motions. Interruptions to these quickly prevent the mutual action between blood and air; morbific conversion of venous into arterial blood quickly affects the respiratory motions, and either may be the primary affection. It is, perhaps, little to be regretted that we have no abstract term in our language by which these diseased states of the blood are designated.

Apart from that total arrest which is speedily followed by death, we know little of the real nature of the aberrations occurring in the function of the lungs, but the few facts recently determined convince us, not only that the blood is liable to morbid conditions, as respects the respiratory changes, but that those morbid states are intimately connected with the symptoms and characters of diseases. Our late estimable colleague, Mr. Broughton, showed that the oxygen is liable to excess in quantity, and that that excess produces the effects of narcotic poisons on the nervous system. In Dr. Davy's experiments on the blood of different species, as well as of individuals, it was found extremely variable in regard to the power of absorbing oxygen; and Dr. Christison inferred that it was unequivocally liable to *inherent* differences, as indicated by great variety in the power of altering atmospheric air after extravasation, —a difference, for instance, in the degree of "venosity" or "venalization" in passing through the capillaries. This we have already inferred from varieties in the colour of the blood and tissues. When venous blood had an arterial colour it absorbed less oxygen, and this happened in febrile diseases when the respiration continued free. The cases examined were those of acute rheumatism, and, in one instance, when the stream was so bright as to lead the operator to fear that he had opened an artery, the absorption of oxygen gas was excessively small. Another difference was connected with the colouring matter; when that was in small quantity the action between blood and air was proportionally slight. In one case the colouring matter was only half as much as usual, and the absorption of oxygen by the blood extravasated was reduced to about one half. Inherent differences respecting the gases of the blood of animals are also inferred from the character of the expired air. In those with cold blood the carbonic acid ex-

haled is ten times less in proportion to the weight of the animal than in mammalia, and nineteen times less than in birds. The proportion in insects has been reported to be as great as in mammalia, but this is regarded as little more than a conjecture. In man the quantity is liable to great variations under numerous circumstances. More carbonic acid is exhaled in middle age than in youth. Dr. Prout found the greatest quantity to be given off between 11, A.M., and 1, P.M., and the smallest between ½ p. 8, P.M., and ½ p. 3, A.M. If the quantity be temporarily increased it afterwards sinks below the usual amount. It is said to be diminished in the same person by depressing passions, violent exercise, spirituous liquors, vegetable food, tea, the long use of mercury, and when the barometer is low. Dr. Reid Clanny found the blood in typhus fever totally void of carbonic acid; and in diseases, and after death from disease, we have the testimony of Dr. Davy that it varies greatly in this respect. For the most part the blood was loaded with this gas, as indicated both by its disengagement when agitated with another, and by the comparatively small proportion which it was capable of absorbing. Dr. Davy believes this condition of the blood, in relation to carbonic acid, to be one of great importance, and capable, when further investigated, of throwing light on many obscure parts of pathology, and especially on the immediate cause of death. In the greater number of instances he found the blood of deceased persons with an excess of carbonic acid, which he believes to be the result of disease, and particularly apt to take place in the act of dying, when the powers of (secretion?) seem to be arrested, and carbonic acid probably ceases to be eliminated by the lungs, accounting for the uniformly dark colour of the blood observed both in the left and right sides of the heart. It also accounts for the fact shown experimentally by Dr. W. Philip that the sensorial functions are the first to cease in the act of dying, and for that happy absence of pain which is commonly witnessed, "diminished sensation (probably, as in birth), stupor, or coma, usually preceding and commencing the phenomena of death."

Heat of the Blood.—The subject of the respiratory changes leads us naturally to that of the heat of the blood. I shall avail myself, under this head, of many of the facts adopted by Dr. Edwards, in his excellent article on Animal Heat, in the "Cyclopædia of Practical Anatomy." There is reason to believe that all organised beings have an inherent faculty of producing heat. Buffon and others have shown that vegetables have their vital heat, and this vital heat is at all times found to have a close relation to the quantity of oxygen consumed. During the germination and the flowering of plants oxygen is consumed and heat is developed. Animals have inherent diversities of temperature, and the following has been estimated as its mean for different classes:—

Mammalia.....	101	deg.	10	min.
Birds.....	107	„	86	„
Reptiles.....	82	„	5	„
Fishes.....	74	„		
Insects.....	75	„	75	„
Crustacea	67	„		
Mollusca	82	„		

The two first classes are called warm-blooded, the remainder comprise the cold-blooded animals. The species which comprise the former differ little from each other in their inherent heat; those which comprise the latter have much more considerable differences as compared with one another. The constancy with which animals maintain the temperature proper to their species led the ancients to regard life and heat as identical, and although this notion is abandoned at the present day, the intimate connection of heat with vitality is well understood. But the temperature of an animal bears a very uniform ratio to that of its blood, and the temperature of the blood of man is estimated to be 101° to 101⅛°.

I have already stated, that the temperature of arterial is higher than that of venous blood. Mr. Vines found it from three to five degrees higher in animals. Mr. Thackrah, in one instance, as 102° to 95°. Mayer found the temperature of the blood in the jugular vein from 2¼° to 4½° lower than that of the carotid artery. But in the comparison I have made between arterial and venous blood, I have adopted the lower estimate of Dr. Davy. The mean temperature of the human body is a trifle under that of the blood, and this appears to me to be a most important circumstance, which has not been duly weighed. I do not think there is one fact which induces the belief, that in the ordinary, or extraordinary state of the functions, the heat of the whole, or of any part of the body, exceeds that of the arterial blood; for although Dr. Davy found the left ventricle of the heart warmer than the blood which it contained, the latter, as remarked by Dr. Edwards, had time to cool, and that it would do so very rapidly is shown by an observation of Mr. Thackrah, that blood flowing from a vein on the bulb of a thermometer, raises the mercury to 92° only. Thus we have *prima facie* evidence, that the heat of the animal body depends upon that of the blood; but whence comes the heat of the blood?

There are important structural differences between the respiratory organs of warm and cold-blooded animals. The first have a double sanguiferous system, and a larger surface for the action of blood and air, and with these are corresponding modifications of function; the arterial is maintained separate from the venous blood, and it is elabo-

rated in a higher degree, and in a greater quantity. "The amount of the arterial blood formed in a given time, is equivalent to the amount of the relation between the air and the blood," hence the temperature of the body is connected with the amount of respiration. But vital heat is found to have a very close correspondence with the quantity of oxygen consumed; I have stated, that this holds good even in vegetables. Young animals consume less oxygen in proportion than adults, and they have a lower power of generating heat; they differ from each other, also, in their power of producing heat, somewhat in the ratio of the oxygen they consume. In hybernating animals the temperature is in proportion to the respiration, and the quantity of oxygen consumed decreases in proportion as their temperature falls, but oxygen plays a most important part in the conversion of venous into arterial blood, and looking to the low temperature of cold-blooded animals, in comparison with that of the medium in which they live, it again appears, that in all classes of animals the degree of elevation of temperature depends upon the qualities of the blood.

But there is another most important connection between respiration and animal heat, through the blood. It has been alluded to several times in these lectures, when speaking of the red corpuscles. We have seen, that those corpuscles differ in size, form, and number in different animals, and that there is a most remarkable and unequivocal correspondence between the quantity of red corpuscles, and the degree of heat developed by an animal. Looking, then, to these several circumstances, the blood of birds is in the most extensive relation with the air of the atmosphere; so, also, their corpuscles, although, perhaps, a little larger, and less spherical, than those of mammalia, are more numerous, and their consumption of air is much greater. Their temperature is considerably higher than that of mammalia, including man. The blood of reptiles has more corpuscles, which are also smaller than in fishes, and more blood is brought into contact with air in the same space of time in a pulmonary apparatus; their temperature is, you see, higher than that of fishes. The blood of invertebrata generally, has neither an arterial nor a venous character; it is colourless, and greatly inferior in the structure and number of its corpuscles, and they have a correspondingly low temperature. Whenever the blood of man is so modified as to resemble that of other animals, the faculty of producing heat and the temperature is in like manner modified. When the corpuscles are more numerous than usual, the heat approaches more nearly to that of birds; but there is no better exemplification of this dependence of the animal temperature on the constitution of the blood than in the cases of *blue* disease, wherein, however perfectly the functions may appear to be carried on, the temperature is invariably below the natural standard, and with difficulty maintained. Enough has been said to show, that there are relations so direct between the respiration and the temperature of an animal, between the mutual changes which take place on the near contact of blood and air, more especially between the consumption of oxygen and the quantity and character of the red corpuscles, as to leave very little doubt on the mind, that those corpuscles and that oxygen are mainly concerned in the production of animal heat.

Hence it is, that the opinion has frequently been held, that animal heat is produced, in the higher classes, at least, altogether in the lungs; but, apart from the fact that vital heat is observed in all animals, if not in all organized beings, whether they possess a pulmonary apparatus or not, there are other well-known facts which have led physiologists to look beyond the lungs for the site of its production. As regards vegetables, a remarkable elevation of temperature has been observed to *precede* the development of the buds and leaves, but since it is by the leaves that they respire, it would appear, that in this part of organic life the development of heat is not confined to a single organ; it appears, even here, to correspond with the vital changes going on in the circulating fluids. Individuals are daily subject to causes which double the frequency of the pulse and of the respiration, so that if the heat of the body depended alone upon the function of the lungs, a true spontaneous combustion might be expected; but, so far from this happening, increased respiration may correspond with a low temperature of the body, as occasionally remarked in diseases. A man may increase his pulse to 120, and his respiration to 36 in a minute, by running, yet the temperature of his body will be much lower than that of another person suffering under fever, with a pulse at 90, and a corresponding respiration. In fever the heat has been observed at 101° with a pulse at 45°. In hydrocephalus, with a pulse at 60 or 70 the heat is often above that of health. In pneumonia an entire lung will be destroyed in a few days, and in typhoid fevers the bronchial tubes will be loaded with secretion, interfering greatly with the respiratory changes, and yet the patient will continue to suffer under a burning fever, with a considerable elevation of the thermometer when applied to the skin. Again, during the intermission in fever, a chilliness and a diminished power of resistance to cold occurs, without any evidence of a corresponding decreased activity in the respiration, and the absorption of oxygen; and the same circumstance sometimes occurs during healthy digestion after a full meal.

I am well aware, that some of these facts are partially met by reference to the cuta-

neous exhalation and secretion, which is regarded as the great cooling function, and also by the fact of the greater rapidity of transmission through the sound lung, where a portion is destroyed, but the observations which have been made, so far as I am aware of them, are extremely inconclusive, and M. Trousseau has judiciously opposed to them the experiments of Mr. Edwards, who has shown, that the low power of producing heat, which is observed in warm climates, and in the hot season of the year, is far from being explained by the circumstance of evaporation. A case is quoted from De Haen, wherein the temperature of a patient, which, during the course of an inflammatory fever had never been above 103°, stood, at the time he expired, and for two minutes after, at 106°; and another case, of a patient dying of a lingering disease, when the heat rose to 101°, and continued stationary for two hours after death. The same thing has been observed in cataleptic cases. Thus, Dr. Good records a case in which "there was no appearance of respiration" and the only signs of life were "warmth and pulse." In some the pulse and respiration have been suspended for hours, and the animal heat maintained, although, in the more extraordinary of these cases, it is said that the body lost its temperature. Facts, such as these, have long since convinced physiologists, that however exact the relation between respiration and animal temperature, the heat is not altogether produced in the lungs.

Volumes have been written to determine the source and the cause of animal heat; it has been referred more especially to the vital processes going on in the system; to new combinations taking place throughout the economy when fluid and gaseous substances become solid, and their latent heat is rendered sensible. The conversion of a liquid to a solid is, no doubt, attended with an evolution of heat, but the conversion of a solid to a liquid has the opposite effect, and the latter may be well supposed to counterbalance the former in the animal economy. It has been referred to the stomach and the process of digestion, but this has been shown to be totally inadequate as a cause. The specific caloric of the animal fluids secreted in the body of the organs, being less than that of the arterial blood, has been imagined to be its source; but this hypothesis is, I believe, correctly met by a denial of the fact. Dr. Stevens is of opinion that wherever the carbonic acid is formed, the heat must also be evolved, and the acid being formed not merely in the lungs but all over the body, heat is evolved mainly in the extreme textures, where arterial blood becomes venous, and that in this way every part of the body provides its own heat. This opinion is supported by the fact, that whenever oxygen combines with carbon to form carbonic acid, heat is evolved; and it is stated that in inflammation the temperature of the surface is several degrees higher than that of the arterial blood with which it is supplied; but Hunter and Abernethy denied that an increase of temperature does actually take place, and although it has since been shown that a rise to a few degrees occurs, I have already stated that there is much reason to doubt if it ever exceed that of the blood of the part. It has also been objected, that according to this view the heat of venous blood ought to be above that of arterial, yet, on this point, it should be remembered that a great portion of the former traverses the external surface of the body, and that may account for its diminished temperature.

A very generally admitted theory to account for animal heat, and, accordingly, for the heat of the blood, is that which refers it to nervous influence; in the words of Dr. W. Philip, "the caloric which supports animal temperature, is disengaged by the action of the nervous power on the blood," making it "the effect of chemical changes produced in that fluid by the action of that power." It has been stated, 1st, That after the division of the *nervus vagus* the temperature of the body falls, but we know well that this interferes with the means by which air and blood are brought into mutual action, and it only proves that the temperature of the body has a relation to the perfect arterialisation of the blood. 2ndly, That after the division of the nerves of a limb its temperature falls. In the case recorded by Mr. Earle, of a paralysed arm, the temperature was 22° below that of the sound arm, but a limb which has been completely paralytic for years can generate heat. Although in some cases of paralysis it would appear that there is no alteration of pulse in the diseased arm, yet I know that in many cases there is. Minute shades of difference in the arterial pulse may be easily overlooked, and the blood may be retarded in its course before it reaches the extreme capillaries, and thus the surface will have a lower temperature. It cannot be made to appear that the nervous influence in this case has anything more than a secondary effect. 3rdly, That in an animal destroyed by decapitation or by dividing the medulla oblongata, artificial respiration maintains the action of the heart, and, so far as appearances go, the arterialisation of the blood; and yet, according to Sir B. Brodie's experiments, an animal kept thus alive by artificial respiration, cooled more rapidly than another allowed to die without artificial respiration; but in other hands these experiments were followed by different results; they were intended to refer animal heat to the cerebro-spinal nerves, which Dr. Copland designates a "mischievous fallacy," stating that it "vitiates the opinions promulgated on the subject by Sir B. Brodie and Dr. W. Philip." Dr. Copland, however, falls back upon the ganglial system, and that theory may, I

fear, with truth, be similarly characterised, for none of those experiments prove that the heat of the blood is owing to the nerves, or that the temperature of the structures is anything more than secondarily affected by the nervous influence. Of this secondary influence we have an instance in the case of *blushing;* the circulation of arterial blood is increased, and the temperature rises; but "the nervous influence is not essential for the evolution of heat."

You know the value I set upon hypotheses, and the baneful tendency which I believe them to have when applied to practical medicine: if they be of any value at all in advancing knowledge, it is in such a dilemma as this, and for the purpose only of directing inquiry into a new train, so as to eke out new facts. It is for this purpose that I am induced to suggest the following, which I believe to be new, and I must confess that reasoning from well-known facts, some of the more important of which have been detailed, it appears to me to account for more of the phenomena than any of the above. I will put it in an aphorismal form:—The source of animal heat is in the blood itself; it results from the molecular vital actions of that fluid, and the source of the higher temperature of warm-blooded animals is in the more energetic molecular actions continually going on between the red corpuscles and the liquor sanguinis. These molecular actions are obviously most energetic in the lungs; hence the relation between respiration and the heat of animals; the high temperature of arterial blood; the correspondence which exists between the temperature of a part and the quantity of blood which circulates in it; and the relation subsisting between animal temperature and the form, size, and number of the red corpuscles. By this hypothesis we could understand, also, the discrepancies which happen between the amount of respiration and the heat of the body, before alluded to. It may well be imagined that alcohol received into the blood would increase these molecular actions and the temperature of the body, and since the latter is not in this case the result of the normal pulmonary absorption of oxygen, we should not expect an increased exhalation of carbonic acid from the lungs, but rather the contrary, and such we find, according to Dr. Prout, to be actually the case. Saline particles taken into the blood would have an analogous effect. Persons who have lost much blood have the faculty of producing heat diminished in correspondence with the diminished proportion of red corpuscles in the blood remaining in the system. It has been observed by M. Poiseuille that when the blood falls in temperature, the corpuscles stagnate and remain immoveable; when it rises again in temperature "their oscillation recommences." I could multiply these illustrations to a great extent.

The temperature varies in different parts of the body, and this bears an imperfect relation to the distance of the part from the thoracic viscera, but you will find it much more nearly connected with the quantity of blood which it circulates. Dr. Edwards and M. Gentil found in a strong man, the mouth 102°; the rectum 102°; the hands 99° 5′; the axilla and groin 99°; cheeks 96° 5′; feet 96°. Now when we consider the redness and activity of circulation in the hands, it is not surprising that they are warmer than the axilla and groins, and this observation bears out the general proposition that temperature corresponds with the circulation of the blood. Internal are hotter than external parts; this is in part attributable to the cooling power of evaporation, in part also to the quantity of blood. A new instrument has lately been applied to determine the temperature of internal parts by means of thermo-electricity. With this instrument the temperature was found to be 4° higher at the depth of the pectoralis major muscle than in the cellular tissue just below the surface, and a similar difference was observed in other parts of the body. Not only depth but the nature of the tissues influences the temperature, to be explained most likely by the different quantities of blood which they circulate. In these experiments, on compressing the brachial artery, a fall of temperature was indicated with great rapidity, the effect and its amount being ascertained immediately after the application of the cause. Muscles receive a larger supply of blood than cellular tissue, and accordingly are hotter. This accords with some experiments made by Mr. Vines, who found the heat of parts most supplied with red blood, as the glutei muscles, several degrees above those supplied with "white blood," as the interior of the ball of the eye. During muscular contraction, also, the temperature is increased, but it is a fair question whether this arises from a greater afflux of blood alone, or whether heat is produced. The most remarkable fact of the kind is recorded, if my memory serves me, by Dr. Granville, who found the uterus at 120° during its contraction. When muscular parts increase in temperature, the neighbouring parts, both by contiguity and by afflux of blood, must do so also.

The temperature of infants and their power of producing heat being low, remarkably coincides with a statement made in a former lecture that their corpuscles are larger and fewer in number. The mean of ten observations by Edwards gave 94° 5′, but the converse holds from the fourth to the fourteenth year, and no microscopical observation has been made on the corpuscles at that age that I am aware of. Dr. Edwards found a difference in this property in young animals of different genera and species, and he refers this to differences in

the state of energy of the nervous system. Animals which are born extremely weak maintain their temperature ill; those which are brought into the world strong, able to walk and eat, for instance, maintain their temperature well; but unfortunately for the nervous hypotheses by which this is explained, as Dr. Edwards himself candidly states, *man* is brought into the world the most helpless of all living creatures, and yet he maintains his temperature within a few degrees of the adult. The fact is, that puppies and many other animals when first born have a ductus arteriosus largely pervious; they are physiologically cold-blooded animals, and their low power of producing heat depends on the quality of their blood. In the guinea-pig, on the contrary, the ductus arteriosus is closed from the first, and its temperature is maintained nearly equal to that of the parent. This is the case also in man, to a great extent; the supply through the foramen ovale is cut off, and the ductus closes very rapidly after birth. In innumerable instances it has been found that the power of producing heat in mammalia progresses with the closure of the ductus arteriosus. It is important to observe, however, that the same difference occurs in birds, although this canal is always closed at birth; yet here there are other reasons for believing that it still arises from differences in the qualities of the blood.

The connection between the heat of the blood and its colour may be borne in mind in practice. Both Haller and Gaubius ascribed the heat of animals and the colour of the blood to one and the same cause. The former quotes authorities to show that in pleurisy and yellow fever the temperature of the blood has been observed at 102° and 104°, in intermittents at 106° and 108°, in continued fevers at 109°. The late Mr. Wilson says, "very rarely indeed has it it been known to rise to 110°, and never, I believe, to 112°." We all know how common it is during venesection for the patient to feel the blood very hot. Some curious instances have been given of a coldness of the blood. Morgagni has the case of a woman whose blood flowed in an icy cold state from the arm; the serum was in small proportion and of a yellow colour, the crassamentum black and viscid, and she had undergone repeated venesections. In a pregnant female bled by Mr. Thackrah the stream throughout the operation produced a chilly feel both to the fingers of the surgeon and on the patient's arm; the temperature was imagined to be about 63°, and there were no remarkable symptoms. De Haen quotes the circumstance of a woman whose blood was quite cold as it flowed from the arm; the catamenia were also attended with a similar sensation. In the cold fit of an ague the blood has been observed at 94°, and in cholera at 86°.

I invite your attention to the article already alluded to by Dr. Edwards, you will find that he refers animal heat to other causes, and you will not fail to observe, that everything which refers to the blood as a cause, is clear and satisfactory; everything which relates to the nervous system, less so. Do not understand me as denying a secondary influence over animal temperature by the nerves. The instance of blushing is sufficient to illustrate it. Everything which affects the motion of the blood influences the temperature of parts. I am well aware of the effect of nervous impressions in hysteria, during menstruation, and in persons of great sensibility. We have constantly before us, in practice, heats and chills corresponding with great variability of pulse; and, to illustrate how partial the effect of nervous impressions may be, the pulse has been observed to beat more frequently on one side than on the other. It is necessary to distinguish carefully between real and fictitious augmentations of temperature from increased nervous sensibility.

Here is an important practical consideration:—anything which cools the blood of a part cools the whole body. In Dr. Edwards and Gentil's experiments, one hand having been kept in water, cooled down by ice, the other hand lost nearly 5° of temperature, so that the chilling of a part, as the hands or feet, or chills on the surface, are felt in all parts of the body. I know that this effect is likely to be referred to nervous influence, but I believe it to be communicated to the whole system through the blood. Heat is communicated in a similar manner. I remember seeing, a few years since, in a public hospital, an athletic, plethoric man, brought in with strangulated hernia; he was inadvertently put into a bath at 108°; in a few minutes he became raving delirious; this was quickly followed by convulsions, and before he could well be replaced in his bed, he was a corpse; the pulse in this case continued for some time after the respiration had stopped. Here was the effect of heated blood circulating with undue rapidity in the brain, spine, and throughout the body.

Enough will have been said to convince you that every observation you make upon the *temperature* of your patients, whether of a part or of the whole of the body, is an observation on the *blood;* it may also refer to states of the nervous apparatus and powers, but it is necessarily an observation on the blood. You will further be convinced of the immense importance of this consideration when I inform you that, as was long since proved by Hales, the movement of liquids through tubes is rapid in the ratio of their temperature; so it has lately been shown by M. Poiseuille, that the heat of the blood exercises a most powerful influence over the rapidity and force of its circulation.

You have seen the connection which subsists tween the power of maintaining a normal temperature and the respiratory changes. In order to illustrate how much the study of the blood, with respect to these changes, has to do with the practice of physic, I shall conclude this lecture with an abstract from M. Piorry, of the numerous causes which may interfere with them :—"That the blood of man may nourish and excite the organs, it must receive the influence of the air in the lungs; if this influence be diminished the blood is altered, it is diseased; if it be arrested for a few minutes only, death is the consequence." The due arterialisation of the blood may be interfered with. 1st, By the want of respirable air, as happens in strangulation, suspension, submersion, and in consequence of breathing an atmosphere of non-respirable gases, as azote, and, perhaps, hydrogen. 2ndly, By mechanical obstacles within the air passages, as mucous secretions, fibrinous deposit (as occurs in croup), tubercles, pus, hydatids, calcareous concretions, &c. 3rdly, By mechanical obstacles to inspiration, applied externally, as from pneumothorax, hydrothorax, inordinate distension of the abdomen by gas, liquid, and hypertrophied organs, &c., compressing the diaphragm. 4thly, Affections of the lungs themselves, as tubercles, pneumonia, hypostatic congestions, which usually destroy life by an accumulation of fluid within the respiratory avenues. 5thly, Impediments to the circulation of the blood, as when it is too thick, exemplified in cholera, or when it traverses the lungs too slowly; diseases of the heart. 6thly, Defective action of the inspiratory muscles, resulting from muscular debility, painful muscular affections, severe cerebral diseases, and especially from division or organic lesion of the spinal marrow or pneumogastric nerve, as from fracture and dislocation of the spine, or paralysis.

The morbid state of the blood is thus frequently the effect of organic lesion; frequently also it is the primary affection, and in all cases it constitutes a principal feature in the disease, since it is the means of its fatal termination. Defective sanguification in the lungs may be *general*, *partial*, or *incomplete*. "Since each bronchial division is to its corresponding portion of lung what the trachea is to the whole lungs, if one bronchial tube be obliterated the blood is but partially purified." When also the chest is incompletely dilated, from abdominal pressure and other causes, the venous blood is but partially purified. Again, the whole blood traversing the lungs may be incompletely arterialised, from breathing bad air, diffused bronchial secretion, and the like. Vigilant attention to these cases of defective sanguification is of paramount practical importance. With respect to the latter, witness, especially, the diseases of the very young and very old. Colour being the index of more essential qualities, black blood produces its deleterious influence upon every living tissue, upon the lungs, the heart, the nervous and muscular apparatus, and the viscera. Both animal life and organic life depend on arterialisation, the dependence of animal life being more immediate, as Dr. Alison has remarked, "perhaps, simply because the nervous is a more delicate texture, and the changes which take place in it are more easily arrested by any noxious influence; and the lungs suffer more than the heart, because every part of their structure is more completely penetrated by, and exposed to, the influence of the blood."

Lavoisier, Beddoes, and Sir Humphrey Davy, long since proved incontestably that the blood may be directly and positively affected by the inhalation of various gases, and we shall have to consider their experiments on the etiology of diseases and the modes of applying remedial agents. The influence exerted upon the blood by impressions conveyed through the nerves, is also reserved for future inquiry.

LECTURES

ON THE

FUNCTION AND DISEASES OF THE WOMB,

Delivered at his Class Room,

Bartholomew-Close, St. Bartholomew's Hospital.

BY CHARLES WALLER, M.D.

LECTURE VIII.

Treatment of cauliflower excrescence of the os uteri. — Necessity of commencing early; Treatment at its commencement; bloodletting; application of cold; straight syringe to be preferred; quietude necessary; recapitulation.—Treatment in the more advanced stage; symptoms attending that stage; indications; remedies required, local and constitutional; ligature; means of distinguishing this excrescence from placenta presentation; treatment when occurring at the time of labour.—Carcinoma uteri, not always begins in the cervix.—Definition of scirrhus; symptoms; danger of confounding the symptoms with those of dyspepsia; character of the pain.—Ulcerated carcinoma; symptoms; does not of necessity prevent impregnation.

TREATMENT OF CAULIFLOWER EXCRESCENCE.

If the treatment of this disease be begun sufficiently early, the female's life may be greatly prolonged; and not only so, but may be rendered tolerably comfortable, as the complaint, throughout its whole progress, is attended with a very inconsiderable degree of pain. The want of this success is in

most cases to be attributed to delay on the part of the sufferer herself, in not applying for advice until the most favourable period has passed over; however, to use a homely maxim, "if we cannot do all we could wish, it is our duty to do all we can." Now, what is the disease we are anxious to relieve? Coinciding in opinion with Sir Charles Clarke, I reply, that it is a morbid growth or enlargement of blood-vessels. The action of those vessels is capable of being excited by anything which increases the force of the general circulation. Here, then, is your first indication, viz., to prevent or to moderate vascular action *generally*, and thus, as a matter of course, to lessen the action of the vessels forming the swelling. This indication is more certainly fulfilled by removing blood from the arm; ten or twelve ounces may be safely drawn away, if the constitution be healthy, and the pulse beating with force.

If the strength be reduced, and the system unable to bear this abstraction of blood, you must be content with cupping the loins, or the use of leeches to the vulva, groins, or perineum. Recollect I am now speaking of the treatment of the disease in its early stage. I shall have occasion, presently, to tell you of a different plan required after it has existed for a length of time, and where it has produced its debilitating and exhausting effects upon the system.

Upon blood-letting, judiciously employed, and, where necessary, occasionally repeated, great reliance is to be placed; not only for retarding the growth of the tumour, but even for diminishing its size, for a time at least. I mentioned in my last lecture, that a tonic and contracted condition of the vagina was to be regarded amongst the favourable signs, the pressure or resistance of which would prevent a sudden increase of the morbid excrescence. This will open to your minds a second indication, and you will make use of such local applications as have a tendency to preserve this contraction, or to restore it where relaxation has taken place. You know already, from what has been observed in former lectures, that cold, properly employed, has great power in effecting this object. In some cases, frequent ablution of the parts in the neighbourhood will be useful.

The most effectual method of applying cold with which I am acquainted, is to procure a large bladder, about half-filled with pounded ice, and lay it over the lower part of the abdomen; it is also much more comfortable for the female, as she will be kept perfectly dry, whereas, if you use the cold water in the ordinary way, no care will be sufficient to prevent the bed-clothes from becoming wetted, and this will add greatly to the annoyance of the patient. Injections of iced water into the vagina should at the same time be employed; a common straight female syringe is the best instrument to effect this purpose, the nurse being cautioned not to introduce it more than one inch beyond the os externum. There is a great objection to the long-tubed syringe (so serviceable on many other occasions), on this account, that as the tumour is easily broken down by slight pressure, a degree of injury might be inflicted by the extremity of that tube, sufficient to produce an alarming hæmorrhage. It is, probably, better in the first instance for the medical man to perform the operation himself, that the attendant may see the proper mode of doing it. I need hardly say, that all stimuli, whether topical or general, would of necessity greatly interfere with your remedies; perfect quietude is required, and everything likely to excite the system, whether physical or mental, is to be studiously guarded against. You well know, that even when the body is in a state of quiescence, the circulation may be greatly disturbed by powerful emotions of the mind; by whatsoever cause this effect is produced, the disease will be increased. Confinement to the couch is also absolutely indispensable, in order that the influence of gravity may not have an unfavourable effect in producing enlargement of the swelling, by allowing the vessels to become distended with blood. As so little pain or inconvenience is felt by the patient, it will be right for you to explain to her the nature of the case, and your reasons for insisting so strongly upon this position, or she may, perhaps, think you are subjecting her to an unnecessarily severe regimen; and an indiscreet deviation from the plan laid down will be the very probable result. A soluble state of the bowels should be preserved; this is exceedingly important; first, because a constipated condition of bowel would have a *directly* injurious effect upon the parts in the neighbourhood; and, secondly, because strong muscular straining efforts, for the purpose of expelling hardened fæces, would be very likely to break away portions of the excrescence, and produce effusions of blood. On the other hand, when diarrhœa supervenes, it should be immediately restrained, as its weakening effects are highly prejudicial. The diet must be simple and unstimulating; fish, poultry, and the animal jellies form an useful and not unpleasant bill of fare; you will, of course, allow neither fermented nor spirituous drinks.

Let us shortly recapitulate the several means to be employed in the early stage. First, venesection or topical bleeding repeated occasionally; secondly, the application of cold; thirdly, the employment of mild laxatives; fourthly, the use of a spare diet; and fifthly, the strict maintenance of the recumbent posture.

We now pass on, and shall speak of the *treatment of the more advanced stages*. This

must necessarily be very different. The constitutional powers are here sinking; the patient is exhausted by a *constant* drain, of reddish colour, with occasional gushes of florid arterial blood; various hysterical symptoms are present, palpitation of the heart, a sensation of choking, and so on; the countenance is pale; the lips livid; the pulse feeble and rapid; and, perhaps, a general state of œdema has supervened. What are your indications here? They are two; to constringe the vessels of the tumour, and thereby to lessen the discharge, and to rally the sinking powers of the constitution. For the accomplishment of the first, powerfully astringent injections are required, *e.g.*, a solution of alum in water, decoction of galls, or decoction of oak bark; sulphate of copper or sulphate of zinc may be substituted for alum, in some cases. These applications will also have the effect of contracting the vagina, an object of no mean importance in the treatment of these affections.

The powers of the constitution are to be supported by tonic medicines, and by as nourishing a diet as the stomach will bear, or, rather, digest. The more solid food, such, as a mutton-chop, is to be preferred, if the patient can take it; if not, strong soups, or raw eggs beaten up with milk or water, with the addition of a little white wine, nutmeg, and sugar, may be substituted. Where exhaustion is rapidly advancing, you will find it necessary to administer small quantities of stimulants, occasionally, throughout the day; great circumspection is, however, required in their employment, lest the circulation be too much excited, and the discharge be thereby increased.

I have little to say with regard to medicines, as they frequently require to be varied. Capsicum and quinine pills, given an hour before dinner, and the mineral acids continued at intervals throughout the day, are among the best you can employ: if these do not appear to succeed, other tonics should be tried. I have found the larger doses of tinct. ferri. muriat. of essential service in these cases, giving from fifteen to twenty-five minims thrice or four times a day in an ounce of camphor mixture. I have at this moment a lady under my care in whom the hæmorrhage has been greatly restrained by the tincture, although there can be no doubt that the disease is advancing, and that it will certainly prove fatal. Still you know it is the duty of the medical man to relieve, and to prolong life where he cannot preserve it. With this view it has been proposed to tie a ligature around part of the tumour, not with the hope of permanent good, but for the purpose of restraining the flow of blood for a time by closing the vessels. When the ligature has come away the growth continues to increase, and the female is soon in the condition she was in prior to its application. I have never met with a case myself wherein I felt justified in recommending this plan; others, however, have done so, and I, therefore, urge it upon your consideration, neither warmly recommending, nor absolutely condemning it.

A profuse hæmorrhage sometimes destroys the patient in a very sudden manner, by producing mortal syncope, whilst in others, especially those whose constitutions were previously healthy, life is protracted to a longer period, the strength being more gradually worn out.

At the conclusion of our last lecture I told you, that if a patient whilst labouring under this disease should unfortunately become pregnant, and proceed to the full term of gestation, the hæmorrhage would be most alarming. This is the natural result of the injury inflicted upon the vascular excrescences by the pressure of the head of the child If the tumour is large, you will find it occupying the upper part of the vagina, and on examination your first impression will probably be that it is a presentation of the placenta. Examine with care, and you will at once correct this mistake. Bear in mind, in the first place, the part from whence the cauliflower excrescence grows, the *exterior* of the womb. It has never been found within its cavity. I am aware (for I have experienced this difficulty in practice) that you cannot at all times trace the swelling up to its attachment. The finger, if I may use the expression, becomes entangled in the various lobes of which the tumour is composed, and does not reach the upper part of the vagina, so that you feel at first nothing but a confused lobular mass, the os uteri and the child being beyond the easy reach of the finger.

Now just contrast this with presentation of the placenta. If you are called early in the labour, you discover the substance presenting altogether within the cavity of the womb, not at all interfering with the os uteri; the degree of its dilatation can be as easily ascertained as in a natural labour. Nor is any difficulty experienced in reaching the womb, even in those cases where, from the violence of the uterine efforts, a portion of the placenta has been pushed through the os uteri. The child may often be distinctly felt behind it, and whatever the mass may be you easily discover that it grows from *within*, and not on the outside of the uterus.

In cases of cauliflower excrescence, if the parturient action does not speedily expel the child, delivery must be effected by art; and if the tumour be large it is better to lessen the bulk of the head by performing the operation of craniotomy. The life of the woman will, under all circumstances, be in great jeopardy in consequence of the blood necessarily lost. Should she survive

the shock of labour, the plan already detailed to you should be pursued with vigour, and all future intercourse with her husband prohibited.

Carcinoma of the Womb.

Of all the malignant disorganizations of the uterus, cancer is the most frequent. It sometimes attacks females in the very prime of life, but is most commonly developed after the catamenial secretion has ceased. The true scirrhus enlargement of the womb, which ends in cancerous ulceration, very generally commences at the cervix uteri: so commonly does this happen that some authors have asserted that the genuine disease has never been known to begin in the body of the womb. The preparation which I hold in my hand proves this opinion not to be correct, for here the ulceration commenced high up, and gradually extended downwards. Sennertus, in his work "On the Diseases of Women," was quite aware of the fact just adverted to, for he says, "Etsi cancer etiam ipsi uteri *substantiæ* accidere potest, tamen hoc rarius accidit, et vixtum satis cognoscitur, multo minus curatur; frequenter vero in cervice uteri generatur, quapropter hoc loco de eo agemus."

Before proceeding further, it is right for me to say that I restrict the term scirrhus to that hardened formation which, if not checked in its progress, will inevitably end in ulcerated carcinoma. These morbid growths seldom acquire a large size, and, therefore, differ very materially from that diseased mass into which the uterus is occasionally converted, and in consequence of which it sometimes acquires an enormous magnitude; this is what has been termed "indolent scirrhus," but as it does not ulcerate, and appears more closely to resemble tubercle, I shall describe this variety of disease under the name of "tuberculated uterus."

Carcinoma of the uterus, I have said, generally begins at the cervix, either by a firm and distinct tumour, or, which is more frequently the case, by a general enlargement and thickening of the part. The symptoms attending the beginning of the disease are slight; women seldom apply for relief until, upon examination, you find such changes have taken place which could not have occurred in a very short space of time; and if you occasionally examine a patient who has submitted herself to proper treatment, you will observe the changes to be taking place very slowly. The preparation, which I now show you, was taken from the body of a female who had been for six years a patient of a neighbouring dispensary: during the whole of that period she laboured under the symptoms of carcinoma.

Leucorrhœal discharge, in a greater or lesser degree, is present in the very early stages of scirrhus uteri; it is sometimes streaked with blood, more especially if much exercise be taken, or the woman indulge in stimulating food or drink, and in some cases free hæmorrhage is induced, the quantity being sufficient to alarm her mind. After a while uneasiness and a sense of weight are complained of, with darting pains about the hypogastrium, aching pains in the back and loins, extending forwards to the upper and inner part of the thigh. If menstruation has not ceased, it becomes more profuse, and blood is mixed with the secretion; after this local evacuation the tumour generally remains stationary for a time, and the pain is somewhat relieved.

The stomach, as usual, sympathises with the womb; there is often want of appetite, nausea, vomiting, heartburn, with other symptoms characterising dyspepsia; care is required not to confound these with the original disease, which you might do, I had almost said without blame, in some instances; many women are so exceedingly diffident that, even when consulting their medical adviser, they will conceal every circumstance which would direct attention to the genital organs, unless you were to put what the lawyers call "leading questions" to them. In all cases of female disorders, particularly when they occur about the "critical period," the state of the uterus should form a very principal object of your inquiry, and should you suspect any disease, let your patient be immediately submitted to a careful examination per vaginam. Frequent inclination to pass water is a very common symptom, sometimes the mere result of the close sympathy which exists between the womb and the bladder, at other times the result of a disordered condition of the mucous membrane of this latter organ. The pain attending carcinoma, I have before mentioned, is of a peculiarly lancinating or stabbing kind, and you will generally observe that this pain is greatly aggravated at periods; these are, however, very uncertain, both as regards their duration and the intervals between them. Should hæmorrhage occur during one of these attacks the pain will be relieved. If you make an examination before the ulcerative process is established, you will feel the os uteri to be more open than usual, and irregular in its figure; in this respect, however, there are great variations; in some you may, without the slightest difficulty, introduce the top of the finger, which will appear as if surrounded by a thick, cartilaginous ring, so great a change having been effected in the natural structure of the part. Where this substance is easily broken down by pressure, you will find, on examination, that the finger is tinged with blood, and this may always be regarded as an unfavourable sign, as it marks that kind of softening which immediately precedes ulceration. An examination by the rectum should be made also, as a

scirrhous affection of the bowel, producing somewhat similar symptoms, is occasionally to be met with.

When ulceration has taken place, the most dreadful state of suffering awaits the unfortunate patient; the pains become agonising, and experience but little remission; there are frequent hæmorrhages in consequence of the coats of the arteries being destroyed; the discharge, instead of consisting of mucus, becomes changed into a sort of purulent ichor, most irritating to the surfaces over which it flows, and of an almost intolerably offensive smell; in one of the last cases of carcinoma, which I was called upon to superintend, the fœtor was distinguishable as soon as the street-door was opened, although the house was of large size; this circumstance adds greatly to the annoyance, not only of the sufferer herself, but of all around her. The bladder in front, or the rectum behind, or both, are frequently laid open by the extension of the process of ulceration, and then, in addition to the symptoms already enumerated, the urine and fæces pass involuntarily. I need not tell you that the fœtor of the discharge is thereby greatly increased, and that it is rendered much more irritating to the genitals. It is scarcely possible to imagine a state of greater bodily torment than is often experienced at this stage of carcinomatous disorder; these cases are rendered doubly afflictive by the absolute certainty of there being no cure, and the great uncertainty of obtaining even a little *relief*, our hopes being often disappointed in this respect.

Horrible as is this disease, it does not always prevent impregnation; observe the preparation on the table before you. I will shortly relate the particulars of the case, so far as I had myself an opportunity of witnessing them. The poor woman from whom this uterus was taken resided in this neighbourhood; she became pregnant, went to the full period of gestation, and was delivered by one of the midwives belonging to the Royal Maternity Charity. Her labour, she informed me, was remarkably favourable. I visited her for the first time about three weeks after confinement, when she complained of the most excruciating torture in her back; the discharge from the vagina was very fœtid, the pulse rapid, but feeble; there was a fiery red appearance of the tongue, and an obstinately constipated condition of the bowels. On examination, the vagina and rectum appeared to be nearly blocked up by a hardened mass, consisting of a number of tubercular feeling bodies, which, I supposed, were the glands of the bowel and vagina in a state of scirrhous enlargement; the os uteri could not be felt. You will see why it could not, if you look at the preparation; the part had been completely destroyed by ulceration. The parts in the neighbourhood of the uterus were greatly indurated and thickened. On making pressure above the pubis great tenderness was complained of. You will often find this to be the case; it arises from the peritonæal covering of the womb becoming inflamed. Peritonitis often occurs to a great extent, so that, on inspecting the body after death, you find extensive adhesions to have taken place as the result of this inflammation. To return to the case, however, the patient's complaint continued to advance, and soon extended into the rectum; colliquative diarrhœa then came on, which I was unable to restrain, although sedatives and astringents were employed. The bladder also gave way, producing a frightful mass of disease; the three passages, namely, that of the bladder, the vagina, and the rectum, being laid into one. This individual lived three weeks after I first saw her, making a period of six weeks after her delivery.

I once more call your attention to the difference in the appearances of this malady when contrasted with malignant ulcer. In carcinoma the whole uterus is thickened, enlarged, and indurated, and, indeed, all the adjoining parts become so; the upper portion of the vagina is as completely scirrhus as the womb itself, rendering it difficult in the latter stages to determine where the vagina ends and the uterus begins. Look again at this preparation; you will observe that the cellular membrane at the posterior part of the rectum is converted into a substance at least an inch in thickness.

Now, no such appearances are observed in the malignant ulcer; there is the ulcer, greater or less in different persons, but beyond it and around it there is a healthy appearance of parts. When you have once had an opportunity of examining a case of true carcinoma, there is hardly a possibility of your confounding it with malignant ulcer. This peculiar condition of the surrounding parts will also prevent your mistaking it for any other uterine affection.

These, then, are the symptoms which characterise the beginning and progress of one of the most distressing and deadly diseases to which the human body is obnoxious; when we meet again I shall consider the various means which are best adapted for its alleviation, I wish I could say for its cure.

IN THE TREATMENT OF DELIRIUM TREMENS by calomel and opium, abatement of the symptoms has almost uniformly been coincident with the characteristic effects of the mercurial. This has been so much the case that to me it appears a good fact on which to ground our prognosis, however slight the change may be. It is an evidence that the constitution is still susceptible of the influence of remedies.—*Dr. G. Bell, Edin. Jour.*

THE EFFECT OF CERTAIN PIGMENTS ON THE BLOOD.

To the Editor of THE LANCET.

SIR:—I submit the following paper for insertion in THE LANCET. It possesses interest for the medical chemist, which may probably justify its length. I am, Sir, your most obedient servant,

JOHN TAYLOR, Surgeon.

17, Nile-street, Liverpool,
Feb. 20, 1840.

Dr. Newbigging, of Edinburgh, has the honour of having first noticed publicly the circumstance, that upon the under surface of a clot of blood received into a cup, variously painted with colours, bright red figures are observable, corresponding accurately with the figures of those parts of the interior of the cup which are coloured *green*, while on all other parts the coagulum is of the ordinary dark tint.

In 1835 he brought the subject before the British Association, at its meeting in Dublin, desiring to be furnished with a solution to the phenomenon, which he then ascribed to some optical condition, of which he was unable to afford explanation.

In March, 1839, he composed a paper on the subject, "which was read by Professor Forbes before the Royal Society of Edinburgh, who, along with Sir John Robison, witnessed several of the experiments with the cups—the interest of the subject being increased by Dr. Abercrombie having also given some attention to it."

The epitome of the paper which may be found at full length in the "New Edinburgh Philosophical Journal," vol. July to Dec. 1839, is as follows:—"That the vermilion-coloured impressions are made on healthy blood as well as on that abstracted from invalids; that when the colour on the cups is raised, *i. e.* painted thickly, the figures imprinted on the blood are most vivid; but that when the colour has been transferred to the biscuit-ware from paper, as in printing, they are scarcely discernible. Hence it was inferred that the effect might be attributable to a raised surface, and a set of experiments were instituted by means of various coloured materials painted thickly, and raised into lozenge-shaped projections at the bottoms of cups, and varnished over, but without the expected result,—and that Mr. Ridgway, a celebrated manufacturer of Staffordshire, had furnished him with much useful information on the nature of pigments used in China painting, among which that oxide of chrome is the basis of fine green."

An approximation to the true cause of the phenomenon was next made by the supposition that a small portion of atmospheric air lingered over the green paint, which became decomposed, and by its oxygen reddened the blood. This illusion, however, was dispelled by the experiment of substituting an aqueous solution of protoxide of iron and isinglass for the blood, thereby expecting the peroxydation of the iron, which, of course, did not occur.

Lastly, it was discovered, in one of the experiments, that the phenomenon was not solely dependant on green—that a pink and crimson rose painted within a cup had produced the same result, by imprinting its figure on the blood. On this point the Doctor observes:—

"It is unnecessary to add, that this single observation at once put an end to any conjectures which I might have formed, as to the green colour being indispensably connected with the effect; whilst, on the other hand, it has left me still more in the dark than ever, as to the cause of the appearance I have ventured to describe. Nevertheless, I have thought it right to detail, in the way I have done, the different steps pursued in my inquiries, unsuccessful though these have been, in the hope that my doing so may aid in suggesting to others some explanation of the phenomenon, which I have been unable to give, as well as facilitate the inquiries of those who may be disposed to prosecute the investigation further."

In pursuance of the invitation I proceed to relate my experiments and reflections, made in the autumn of 1834, when my attention was attracted to this subject by a patient who had casually noticed the beforementioned change on the base of the blood after venesection. I uniformly found that when the oxide of chrome formed the basis of the green colour, the described effect ensued; but that when the paint was of an inferior kind, composed of a vegetable blue and yellow, it made no impression on the blood; this led me to the discovery of the cause, *that the oxygenating property of the oxide of chrome had been the means of bleaching the portion of clot in contact with it.* On proceeding to draw up a sketch of the matter for public use, I discovered in one of my experiments, that a red flower, painted on the bottom of a teacup, had also imprinted its figure on the blood, as well as the green leaves bordering the flower, which circumstance afforded me fresh conviction that I was correct as to the solution of the mysterious property of the green paint,—for I was soon aware that the reddish pigment which had so *decarbonised* the blood, was composed of the dichromate of lead (commonly called the subchromate). The matter having been brought by Dr. Newbigging before the collective wisdom of the sciences, I considered that my expositions would be superfluous; but, having very lately met with the Journal from which I have extracted the foregoing abridgement, I find that the subject has not met with the elucidation I had antici-

pated, and, therefore, feel called upon to afford such an explanation as will be familiar to the mind of Dr. N. and to the medical department of the British Association, whose attention it has previously escaped.

Chrome is now known in the arts as the best oxygenating agent; its oxide, acid, and salts being extensively used in bleaching. To effect this process, the presence of free carbon, aqueous moisture, and oxygen, is necessary; these may combine directly, as in bleaching by atmospheric air; or, indirectly, by the play of affinities through the intervention of chlorine,—the water, or vapour, being decomposed to form muriatic acid by its hydrogen, and carbonic oxide by the union of its oxygen with the carbon of the substance to be bleached. Now the crassamentum of the blood is eminently disposed for being bleached in the cups by either of these processes—that is, the direct transference by exudation, as it were, of the oxygen of the chromic oxide to the carbon of the blood, or by the decomposition of its free muriatic acid, thereby generating chlorine, the contact of which with the carbon attached to organic substances, and water, decomposes the water, reproduces muriatic acid and evolves oxygen, as in the ordinary routine of bleaching; the former I apprehend to be the natural mode. How can the oxygen of the chromic oxide, or of the dichromate of lead, permeate the glaze of china and earthenware? And how can the same point impart oxygen several times? Rather than ascribe any mordant property to the glaze (which consists chiefly of chloride of sodium in earthenware, and of borate of soda, or sub-borate, in china), I attribute the permeation to the fissures, and other imperfections in the uniformity of, the glaze; for, however perfect it may seem to the naked eye—as a coating to the subjacent point—it is, nevertheless, in earthenware always a little crazed and defective. On subjecting a green-painted fragment of a fine new china teacup to inspection through the microscope, I observed the general surface of the glaze very uniform, and unbroken by fissures, and studded with innumerable small white stellated spots; another larger fragment was marbled with detached blotches, of a glistening saline appearance, which I conceived to be granular pieces of soda, or subborate of soda. These imperfections, therefore, render the glaze permeable to fluids and gases. Immediately after imparting oxygen the paint looks paler, but soon regains its former depth of colour; the re-absorbing power of chromium enabling it to re-oxydises itself. Thus the same cup may be used several times with equal effect. Very few of the red flowers and devices on earthenware have a chromic base. With respect to the green ornaments, the eye soon becomes familiar with the characteristic emerald tint of the oxide of chrome. No other green or red will succeed, so far as discovery has yet been made, though it is probable that some of the salts of manganese (many of which are of a pink or light-red colour) may, also, from the well-known agency of manganese, in yielding and re-absorbing oxygen, possess the decarbonising property; in short, the mysteries of the decorative art may include the knowledge of other oxygenating substances not generally known; the quo modo of their action on the blood, however, cannot hereafter be misunderstood.

The approved expedient of appending a moral to every tale leads me to trespass a little further, by some appropriate deductions from the foregoing details. It ought not, I consider, to be inferred, from the circumstance of oxygen reddening the blood that it forms a combination with iron, or any other substance, to constitute the colouring principle. The presence of iron in the blood has not yet been proved to be anything more than adventitious; oxygen, therefore, merely bleaches, or decarbonizes, leaving the eritrogene free to abstract nitrogen (the true colouring principle of the blood) from the atmosphere, to maintain its floridness.

Respecting fluid albumen, if Dumas and Prevost be correct in considering it an albuminate of soda, its oxygenation is implied; and, adopting the opinion of Berzelius, that "albumen and fibrine are the same principles," it may be inferred that oxygen is the intermediate agent in effecting the translation. Considerably more oxygen being inspired that is afterwards evolved in the shape of carbonic acid, the excess must necessarily be absorbed by the blood; it is, therefore, probable that it serves the purpose of conducting the various stages of oxydation of the albumen, controlled by nervous, or galvanic action. But, while some philosophers regard the combination of albumen and soda as that of a salt, others consider them mere miscible substances loosely attached. The decomposition of fluid albumen by the galvanic circle evolves caustic soda at the negative pole, and coagulated albumen at the positive; but whether the albumen has been merely indurated by the effects of electricity, or oxygenated thereby, is a problem. If oxygenated the degree or equivalent of oxygen necessary to form its character as an acid is, probably, the reverse of what is observed in the acidification of other substances, as a further dose of oxygen renders it incapable of forming a salt.

Assuming it, then, to be oxygenated, serum (or albuminate of soda) may be regarded as the lowest degree; the production of fibrine for deposition in the organs and tissues the next appreciable increase; and the membranous structure called the buffy coat of the blood, as peroxydised fibrine, which last condition is always attended with increased electrical excitement. We

have something analagous to this process in animal chemistry, without the influence of vitality. The introduction of oxygen into cream, by the electrical action of churning, thickens an element in the oil of milk—stearin—which forms butter, the albumen at the same time absorbs oxygen, forming curd, which is separated from the butter by ablution with warm water. It is just so with the blood. Whatever circumstance gives rise to inordinate galvanic action quickens the motion of the blood, and promotes a more rapid absorption of oxygen, whereby the fibrine enters into the state of membranous organisation presented by the buffy coat, of which the condition of the blood in over-driven cattle is an instance.

It would be desirable, in inflammatory diseases, to be able to compensate for the frequent withdrawal of blood by the substitution of some solvent that would reduce the membranous fibria to its previous condition; particularly where the loss of so much of the pabulum of life as may be necessary effectually to relieve an inflamed or congested organ, may inflict irreparable injury, as in persons accustomed to the use of strong stimulants for the maintenance of organic action. The subject is replete with interest, and deserving of extensive experimental research. General therapeutic knowledge on this point seems to be limited to the use of potash, soda, and their salts.

TYPHUS FEVER AND DOTHIENENTERIE.

PARISIAN MEDICAL SOCIETY.

Thursday, Feb. 6th, 1840.

President, M. Ricord.

*On the Distinction between Typhus Fever and Dothiénenterie.** *By* H. C. Barlow, *M.D.*

All typhoid diseases have a certain assemblage of characters in common: these are great prostration of strength, stupor, dryness of the tongue, sordes on the teeth, somnolency and delirium; to these symptoms M. Andral has given the name "*typhoid state*." They belong to typhus, properly so called; they may supervene in the course of various acute febrile affections, and they form also a part of the phenomena presented by dothiénenterie, but they do not constitute its peculiar character, and are merely the general expression, or symbol, under which a great variety of diseases agreeing in these particulars may be classed. Although, therefore, typhus fever and dothiénenterie both exhibit the above group of symptoms, yet such a coincidence does not in consequence prove them to be the same or even similar, diseases, while, from other characters, which they do not exhibit in common, we find that there exists an important and well-marked difference between them. This difference does not consist solely in a lesion of the clustered glands of Peyer, and of the solitary glands of Brunner, which forms the anatomical character of dothiénenterie, but also in a certain series and succession of abdominal and other symptoms; and, I would add, likewise, in the natural history of the two diseases themselves. The typhoïde fever of France is an endemic disease; it is endemic in those localities, as in Paris, where it principally prevails, and where the influence of contagion is extremely doubtful, and by many positively denied. The typhus fever of Great Britain and Ireland, on the contrary, is a highly *contagious* disease, and particularly so in Edinburgh, Glasgow, Dublin, and other large towns where it chiefly occurs. In London the disease approximates more to the Paris fever, or rather, cases of both kinds are more commonly met with there than in the towns just mentioned, and typhus is there believed to be less contagious. I think it will be found, in general at least, that a disease which is endemic is not at the same time contagious, and *vice versa*; that the poison in the former case acts more immediately on the nervous system, and hence the disease which it occasions is sudden, while in the latter the poison is absorbed into the blood, and hence the development of disease is more gradual; and I would suggest that two diseases, so different in their modes of origin, however nearly in the course of their symptoms they may come to resemble each other, cannot be essentially identical. * * Dothiénenterie chiefly attacks those who have only been a short time resident in Paris, or in a large city; typhus fever observes no such distinction of persons; the former rarely occurs above the age of 40, or below that of 10, the latter, on the contrary, very frequently does.*

Dothiénenterie is at its maximum in autumn, and at its minimum in winter. Autumn is the season in which abdominal affections and endemic fevers are most apt to prevail, and between a slight abdominal derangement and a confirmed dothiénenterie there appears to be a natural connection, and frequently a very obvious transition; in typhus no such connection is observed to exist, and the disease is often at its greatest height in winter, when the former is compa-

* Dr. Barlow employs this term to designate the "typhoid fever" of French writers.

* These and other general statements were illustrated and confirmed by references to the works of Louis, Chomel, Littre, and others, and by a careful comparison of the reports of various hospitals in Great Britain and Ireland, and the observations of British medical men.

ratively rare. The most marked endemic diseases are fevers characterised by a sudden accession of severe rigors, succeeded, sooner or later, by much increased heat of surface, and followed by diaphoresis, the symptoms observing, with more or less regularity, a certain periodical return, and having for their accompanying anatomical lesion an enlargement of the spleen, often very considerable. These fevers, under some circumstances, may become continued, the typhoid state may supervene, and various complications ensue. I will not say that dothiénenterie is allied to these diseases, but it cannot be denied that it has something in common with them; it is endemic; it prevails mostly in the autumn, usually beginning a short time before noon, with shiverings, repeated frequently during the day, and especially at night; to these succeeds considerable heat of surface, followed by diaphoresis, which is frequent in the early period of the disease, and also during convalescence, at which time the heat of the skin subsides. Sudamina often occur, and one of the most common anatomical lesions is an enlargement of the spleen, which may occasionally be felt during life, surpassing the margin of the ribs, and after death is discovered, in some cases, to be four or five times its natural size. There is here, if not a sufficient resemblance, at least a sufficient analogy, to induce us to think, that the endemic poison of dothiénenterie may belong to that class of poisons which acts directly on the nervous system, and which, whatever their mysterious nature may be, are certainly very different from those morbific agents which are generated in the living human body.

It may also be remarked that the mesenteric fevers of Rome, described by Baglivi, though continuous, are allied to the remittent type; that the morbus mucosus of Rœdener and Wagler, which occurred at Göttingen in 1761, and which agrees with the third form of typhoide fever, specified by M. Chomel, made a near approach to the character of the *hemithitæus*, or semitertian remittent, and that it was preceded and followed by agues, and assumed, during its course, an intermittent character. The bilious pituitous fever of Schrœder, also, showed occasionally a remittent form; and the gastric fever occurring at Vienna generally betrays the same character. In some parts of Germany, on the contrary, the symptoms which this fever presents have caused it to be referred to the head of typhus, under the name of abdominal intestinal typhus,* the name given by the Germans to what the French call dothiénenterie, or "la fièvre typhoïde," and which, in Great Britain and Ireland, is so frequently confounded with typhus fever, properly so called, though it appears that some doubt may be entertained with regard to its genuine type.

In typhus fever there is most usually a premonitory period, marked by headach and general indisposition; dothiénenterie, on the contrary, is rarely preceded by precursory symptoms; its occasion is mostly sudden, and it comes on at once with a rigor. Even in those cases where precursory symptoms do occur, such as languor, loss of appetite, and diarrhœa, these do not prevent the characteristic invasion; almost always there is a particular moment when the disease manifests itself; it is not established in a slow and progressive manner; the patient does not fall ill by degrees, but is seized all at once, so that it is probable that the precursory symptoms ought not to be considered as essentially connected with the disease itself.

The general symptoms of dothiénenterie have much in common with those of typhus, but there is a smaller group of symptoms, which are more or less distinctive of the disease, accordingly as they occur in conjunction, and are more or less perfectly developed; these are diarrhœa, epistaxis, pain or uneasiness on pressure being made over the right iliac region, gargouillement, and meteorism; the order and period of the accession of symptoms assist, at the same time, the diagnosis. The *peculiar* typhoid eruption is also an important particular; and some other minor circumstances, as singing or buzzing in the ears, deafness, dizziness, and giddiness, have likewise been mentioned; but the abdominal symptoms, together with the epistaxis and the typhoid eruption, are the characters on which most reliance is to be placed.

Diarrhœa is one of the earliest and most constant symptoms. It usually sets in at the beginning of the disease, and continues till its close. It does not appear to be essential, as three fatal cases are mentioned by M. Louis in which it did not occur; neither is there any obvious relation between its amount and the degree of organic lesion which exists; yet its occurrence is almost invariable. In typhus an opposite state prevails, and diarrhœa is comparatively rare. In dothiénenterie there is sometimes intestinal hæmorrhage, more or less abundant. Epistaxis is a very characteristic symptom, and may occur either in a few drops only, or in sufficient quantity to augment considerably the danger of the patient. It usually appears in the course of the first week. Towards the close of this period meteorism most frequently manifests itself; its commencement is ascertained by a clear sound being produced on percussion; while at the same time, on making pressure, especially over the right iliac region, a gargouillement is heard, occasioned by the co-existence in the intestines of liquid and gas.

* See Dr. Craigie's "Practice of Physic," vol. i.

The typhoid symptoms of dothiénenterie present nothing very important to the present subject. There is at the commencement great prostration of strength, but probably not more than is seen in typhus; there is also much dizziness and somnolency, but the patient obtains little or no sleep; as the disease advances somnolency is succeeeded by delirium. Deafness is not an unusual symptom, and is frequently preceded by a a sound of buzzing in the ears. The sense of vision is in some cases obscure, and objects appear to the patient as if enveloped in a cloud.

The tongue may present almost every variety of appearance; but if any indicationis furnished by that organ, it may be that it is less frequently dry and black than in typhus. Neither can any inference be drawn from the pulse, unless it be, that at about the 8th or 9th day, from having been somewhat full and firm, it may become small, thready, sometimes trembling, and even intermittent.

Towards this period the typhoid eruption, consisting of lenticular rose-coloured spots, "*taches rosées*," appears on the abdomen, back, and chest; it is not an abundant eruption, and not always present. The spots are about a line in diameter, regular in form, slightly elevated, and disappear on pressure, but return again. They come out in succession, 4 days being the average duration of each, and 8 days that of the disease itself. Sudamina, though less constant, are sufficiently frequent to assist the diagnosis: they consist of small vesicles, filled with a transparent liquid, and give a somewhat rough feeling to the skin. They commonly commence on the sides of the neck, armpits, and groins, and extend, in some instances, to the trunk, and extremities. This eruption comes out later than the former, and rarely disappears before the 15th day. Petechiæ have been chiefly noticed in particular epidemics. They vary in diameter from one to several lines, and neither project nor disappear on pressure. *Vibrices* occasionally occur.

In the typhus fever of Great Britain and Ireland the eruption is chiefly petechial, often mixed with vibrices, appears earlier —on the 4th or 5th day—sometimes before, and is commonly profuse, the amount of the eruption bearing a certain ratio to the intensity and duration of the disease. * * * * Besides the above symptoms dothiénenterie is frequently marked by a headach of a dull, fatiguing kind, usually occurring at the commencement of the disease, and continuing about 8 days; occasional dysphagia, and the existence of a sibilant râle, heard more or less distinctly over the whole chest.

The duration of dothiénenterie may be stated on an average at from 20 to 30 days. In some mild cases convalescence has occurred as early as the 14th or 15th day; more frequently it takes place about the 21st, and in some cases as late as the 30th, and even beyond. Death has rarely happened during the first week, more frequently in the 2nd or 3rd, occasionally in the 4th, 5th, or even the 6th. The average duration of typhus in 43 fatal cases, mentioned by Dr. Reid,* was 12¼ days; the earliest death took place on the 6th, the latest on the 22nd day; so that typhus appears to run its course much more rapidly than dothiénenterie.

The rate of mortality in dothiénenterie may, on an average of a great number of cases, be stated at about 1 in 5, that of typhus is about 1 in 10.

Dothiénenterie does not occur so often among females as among males, the proportion of the former varying from about one-third to one-fourth only of the latter. Typhus fever, on the contrary, occurs as frequently among females as males, and indeed rather more so. This difference probably arises in a great measure from dothiénenterie being an endemic, typhus fever a contagious, disease. But although women seem to be more exposed to the operation of contagion than the opposite sex, yet the ratio of mortality among them is much lower in proportion than the ratio of the number of cases among them is higher. Thus in Dr. Kennedy's Report of the Fever Hospitals in Dublin, during the year 1837, the number of female cases exceeds that of the males by very nearly one-fourth of the latter, while the number of deaths is one-half less. In Dr. Reid's Report of the Fever Cases in the Edinburgh Infirmary, the proportion of females exceeds that of the males by about one-sixth. In Dr. Cowan's Report of the Glasgow Fever Hospital, by scarcely more than one-twelfth, yet, in both these instances the relative mortality of the two sexes is almost precisely the same as that given by Dr. Kennedy, viz., one-half less among the females than among the males.

The pathological characters met with in typhus may be considered rather physiological than anatomical; they do not consist in any obvious alterations of structure, but in a certain condition of the fluids and solids; the blood is found to have lost its natural property of coagulating, and exhibits a liquid or isolated state; there is more or less passive congestion of different organs, and a considerable tendency exists to putrefaction; while in the intestines and in the mesenteric glands there is not only a complete absence of the characteristic lesion of dothiénenterie, but an absence of every kind of lesion whatever, a truly remarkable cir-

* Report on Fever in Edinburgh Infirmary. "Edinburgh Medical and Surgical Journal." No. 64.

cumstance, and one, M. Valleix* observes, which gives to typhus fever a place quite apart from all other febrile affections.

The last particular which I would notice, in reference to the two diseases, is that dothiénenterie never occurs more than once in the same individual, whereas typhus fever very often does; one attack, instead of affording complete immunity ever after, seeming, at least in some instances, to predispose to a second, and so on in succession.

The above are the principal remarks which have occurred to me in considering the differences which the symptoms and natural history of dothiénenterie present from the symptoms and natural history of typhus fever. Other remarks might be added, but these I think are sufficient to show that the two diseases cannot be identical. Briefly to recapitulate the list, they are as follows:—A difference in the manner of origin, a difference in the seasons of occurrence, and a difference in the modes of attack; a difference in the series of symptoms, a difference in the external appearances, and a difference in the duration of the diseases; a difference in the ages at which they occur, a difference in the sexes in which they principally prevail, and a difference in the mortality which they respectively occasion. While the great and crowning difference of all is, the existence of a particular anatomical lesion in one, and the absence of any obvious anatomical lesion in the other.

Surely two diseases which differ in all these particulars cannot be identical.

M. Bouillaud, in his work on essential fevers, has cited various examples of adynamic and ataxic forms, in which the digestive tube presented no appreciable lesion; but, as M. Valleix well observes, we must bear in mind that these adynamic and ataxic fevers are neither more nor less than diseases of different kinds, accompanied by what M. Andral calls the *typhoid state*. In a more recent work* M. Bouillaud admits only two forms of fever—the *gastro-duodenite*, or bilious fever, and the *entero-mesenteric fever*, or dothiénenterie; and since he has adopted this improved classification the latter disease has always been found to present the characteristic lesion of the intestinal follicles.

This circumstance shows the importance of obtaining definite ideas of things, and not being led away by the influence of names; it illustrates, also, the advantage of seeking some more satisfactory and permanent principle, than that which the shifting semblance of superficial symptoms may afford, whereon to establish the identity of a disease.

If pathological anatomy afford such a principle—and who will say that this is not the most secure, if not the only sure, foundation on which a natural and scientific nosology can be based—then, indeed, must dothiénenterie be considered a disease distinguished *per se* from every other malady that flesh is heir to—a disease in which the anatomical character is so invariable, that the few exceptions which ever do occur serve only to confirm the existence of the general fact, and show it is merely something less than universal, a circumstance which the analogy among natural phenomena would have led us to expect.

If, however, the anatomical lesion be sometimes absent in seeming cases of dothiénenterie, it is never present in any other disease. This is the stronghold of dothiénenterism. Here the partisan of this ill-fated, I might almost say ill-treated, disease, may take his stand, in the words of the Venusian bard it may be said to him,

" ——— Hic murus aheneus esto ;"

and from this impregnable position, as from behind a wall of firmest brass, he may not only defy the feeble efforts of his adversaries to dislodge him, but may most successfully defeat the attacks of those who, in the sweeping declaration, typhus fever, would annihilate the claims of dothiénenterie to be considered a distinct disease.

* " Archives Generales de Medicine," vol. iv.
* " Clinique Medical."

WESTMINSTER MEDICAL SOCIETY.

Saturday, February 15, 1840.

Dr. Crowne, President.

NEW MODE OF TREATING STRICTURE.

Mr. Robt. Wade read a paper on strictures of the urethra, the chief object of which was to establish the utility of the potassa fusa in their treatment. He remarked that there was the strongest feeling in the profession against the use of this remedy in stricture, yet in his hands, for a great number of years, it had proved efficacious in the very worst strictures, and had not, in a single case, been attended by any of the untoward effects which, according to the candid admission of Sir Everard Home, had so often resulted from his use of the nitrate of silver. Strangury and profuse hæmorrhage from the urethra, were amongst the occasional ill effects of nitrate of silver, and sometimes the patient returned again after a while, worse than before its application, but the use of the potassa fusa was open to none of these objections. It never caused a slough to separate as did nitrate of silver, but it combined with the animal texture and formed a saponaceous compound, and this he (Mr. Wade) believed was one of its greatest advantages. It would act on the most firm and ligamentous strictures on which the

lunar caustic would make but little impression. He thought also that the fused potash, after combining with the animal substance, permeated the surrounding texture, and promoted the absorption of the stricture, thus effecting more good than by its direct action. His mode of applying it was, to take a portion varying from the eighth of a grain to a grain, and place it at the end of a bougie, moulding the wax well round it, and having previously measured the distance of the stricture, to pass the caustic down, and retain it against the stricture. The application might be repeated every second or third day, if there was no irritability to occasion a greater delay. He applied it to strictures which prevented the introduction of the smallest instrument into the bladder, and to these which, though admitting a very small instrument, yet, from their unyielding nature, could not be dilated, also to cases of spasmodic stricture; but he never applied the caustic to strictures which could be remedied by simple dilating instruments. The author concluded his paper by relating a number of cases, many of them severe ones, of long standing, and all of them perfectly successful.

Mr. Gregory Smith said, that he had seen the potassa fusa applied to strictures a few years ago by Mr. Jeffries, at St. George's Hospital, and in one instance its use was followed by an abscess in the perineum, in another by hæmorrhage from the urethra. He (Mr. S.) suspected that Mr. Wade did not apply the caustic, but only the bougie, as he thought the caustic might become covered by the mucous of the urethra, and thereby not produce any effect. If it merely produced absorption and did not act as an escharotic, a simple bougie would do as well, and if it acted as an escharotic, he thought the cutting instrument, proposed by Mr. Stafford, would be preferable in bad cases.

Mr. Davey said he had used the potassa fusa at Mr. Wade's suggestion with great success, in three or four cases which had not yielded to other measures. It did not produce a slough.

Mr. Robins thought that potassa fusa might act as a stimulant and so promote absorption; he would have liked to hear Mr. Wade relate a few unsuccessful cases!

Dr. Brooke believed that Sir Everard Home's plan was to apply a large piece of lunar caustic, and he (Dr. B.) thought if uncertain as to the part with which it might come in contact, it might pass into a pouch made by previous attempts to pass an instrument. He (Dr. B.) was accustomed to introduce a little powdered nitrate of silver mixed with a small quantity of lard, into the end of a very small catheter gilt at the extremity, and when the instrument was passed down to the stricture to push out the ointment with the stilet.

Mr. Streeter inquired whether bad strictures had not become much less frequent in this metropolis since the violent mechanical means of treatment, formerly in use, had been abandoned. He thought that very bad strictures nearly always arose from neglect. He had found local bleeding, fomentation, and the avoidance of stimulants of use, where there was irritability; and that the passing of a bougie three or four times a year, with a little preparatory antiphlogistic treatment, would allow many persons with stricture to pass on very comfortably.

Mr. Wade, in reply, stated that he had never seen any accidents such as Mr. Smith had related, from the use of the caustic potash; and he had never met with a case he could not relieve by its application. He thought strictures as common amongst dispensary patients now as formerly.

Saturday, February 22, 1840.

Mr. Streeter, President.

CASES IN MIDWIFERY.

Mr. Stone related the following cases:—Mrs. S., who had borne eight living children and one dead one, became pregnant for the tenth time. Nothing unusual occurred during the progress of gestation, which terminated at the time on which she had calculated. A full-grown child was born soon after commencement of labour. The uterus began to act again in about half an hour, and in the course of a short time a fœtus was expelled, of about six months or rather within that period, compressed and flattened, and not appearing to have lately lived, yet it was not putrid, nor had it any of those appearances of desquamation usually found in a fœtus which is believed to have remained dead in the uterus, under ordinary circumstances; the placentæ followed in a short time, one part, which had contained the healthy fœtus, had its usual characteristics; the other part was small, and did not appear to have carried on any of its functions for some time; the vessels were shrunk and bloodless, but the membranes had been whole up to the time of labour, as was indicated by their appearance, as well as by the fact that there had been no vaginal discharge during the pregnancy. In this case the live child proved to be the most wretched idiot Mr. Stone had ever seen.

A young married lady, during her first pregnancy, was walking in the country with her husband, when, in order to cross a style, she mounted to the top of it, and, with his aid, jumped to the ground, in doing which she heard, or fancied so, something snap and give way in her abdomen. There was no pain, but she felt a slight discharge from the vagina; this occurred on the 75th day from the last appearance of the catamenia. Upon her reaching home she found that the discharge was colourless and watery, and

not at all tenacious or slimy. It continued, and, on the following day, Mr. Stone was requested to see her, when he obtained the above history; she added also, that she felt well and free from pain. The accustomed morning sickness continued; the breasts were not flaccid, and she suffered from slight pricking pains in them, as she had, indeed, for two or three weeks previously. The recumbent position and a cool apartment were recommended. As the pregnancy advanced, the discharge became more abundant, generally colourless, but occasionally, for a few days, of a light pink colour. The number of napkins at first required, was from three to five in the twenty-four hours; but they increased from that number to twelve or fourteen. The discharge was the only unusual circumstance attending the pregnancy. Delivery occurred on the 255th day, and she was confined with two boys of about equal size, and fine children for the period. They lived 17 and 24 days. No membranes preceded the head of the second child. The placentæ were expelled together, and attached; they were equally larger; to the one there was the usual extent of membranes; to the other a sort of fimbriated margin, of two or three inches breadth, surrounding the edge.

Mr. Stone remarked, that in either of the two cases had the uterus contained but one fœtus, an early abortion would have resulted; whereas in neither case was gestation interrupted by the changes of circumstances which occurred to the single fœtus.

CONCUSSION OF THE BRAIN.

Mr. Beevor had lately seen the following case:—A boy, about twelve years of age, was thrown from a horse, with some violence. He seemed to have sustained no injury, jumped up, and walked home a distance of three quarters of a mile. He remained well for nearly three hours, at the expiration of which time he became quite insensible; the pupils were dilated. In a few minutes he was seized with convulsions, which, terminating, left the right side of the body affected with a certain degree of paralysis, both as regarded sensation and motion. Fit after fit kept occurring for two or three hours. The head was examined; there was merely a slight wound of the scalp; no fracture, no depression. Was there compression of the brain from extravasation within or without the dura mater? The pulse justified blood-letting, which was resorted to, with the use of purgatives; and in a few hours the boy was sensible and better. The next day he was well. Now, were not the symptoms in this case such, that, had they continued longer, they would have justified the use of the trephine?

Mr. Streeter remarked, that the case related was an illustration of the great impunity with which injuries of the head were inflicted upon children. He could give a remarkable instance in point. About 18 months ago, as a child, seven or eight years of age, was walking out in the fields, it was kicked by a colt. He was found lying on his face, having received a severe kick on the fore part of the head. He was quite insensible, and a considerable portion of brain was found over the forehead. The child eventually recovered, and seemed to have suffered no inconvenience from the loss of the brain.

Dr. J. Johnson thought that in cases like the one related by Mr. Beevor we should not be justified in the use of the trephine. Admitting, indeed, that there was extravasation, the trephine was quite as likely to be applied over the part where the blood was not as were it really was. An operation was, therefore, unjustifiable, until all other means had failed.

DIABETES.

Dr. Golding Bird briefly detailed the particulars of three cases which had occurred in his practice. Two of the patients were females, one a male. They all suffered under the usual symptoms of diabetes insipidus, having dry skin, constipated bowels, and making large quantities of insipid urine. They were all remarkably emaciated, with countenances indicative of great despondency. The specific gravity of the urine in all the cases was very low, not exceeding 10.11, and in no case could any "osmazome, usually found in the urine of patients suffering from diabetes insipidus," be detected. In one case the woman attributed her illness to a species of satyriasis on the part of her husband. In the man it appeared to have had its origin in a fall from a height across his loins, followed by great pecuniary embarassments. In the other case no cause was assigned. Purgatives were found to be most beneficial, and succeeded, in a remarkable manner, in diminishing the quantity of the urine.

Dr. Johnson had treated many such cases, under the impression, that were diabetes insipidus. He had found attention to the bowels, stomach, liver, and skin, generally successful treatment. With reference to the various tests for diabetic urine, he never waited for them, but always at once tasted the liquid, and satisfied himself whether or not it contained sugar.

SUDDEN DEATH.

Mr. Snow related the following particulars of a case which had come under his notice.—A little girl, five years of age, whom he had treated during last summer, for enlargement of the abdomen, arising, he considered, from mesenteric disease, and who completely recovered under the use of alteratives and tonics, died suddenly about three weeks ago, before any medical assistance was ob-

tained. Her parents, from the suddenness of her death, supposed that it arose from a fit, though, on being questioned, they stated that there were no convulsions; the child became motionless and insensible, and died in less than half an hour. She had been indisposed for two days, had remained from school, had not eaten any food, and complained of pain in the belly; but her mother did not consider her illness at all serious. The body was examined. The lungs were found perfectly healthy, but there were some firm and old adhesions of the pleuræ. The heart was healthy, except that the foramen ovale was pervious, closed, however, by a valve. On opening the abdomen, the liver was found healthy, but the whole of the peritoneal surface was thickly coated with recently-effused lymph. The cavity contained a few ounces of serum, with flakes of lymph floating in it. The whole of the intestines were very vascular, being of a bright-red tint, and were adherent to each other, but could be easily separated with the finger, without using any force. The mesenteric glands were slightly enlarged, but otherwise healthy, and there was no ulceration of the bowels. The abdomen was not larger than natural. The head was not examined. Mr. Snow considered that the degree of inflammation had been quite sufficient to account for death, and had no doubt that a medical man would have been able to recognise the presence of acute peritonitis; still, however, he thought the symptoms must have been remarkably obscure, not to have alarmed a mother whom he knew to be anxious about her children, and who always applied for advice when she thought that anything in the least serious was the matter with them.

Dr. Johnson considered that the patient in the case related did not die of the peritonitis, which, in fact, was not sufficient to produce death, but that the fatal result was owing to some affection of the brain, probably the "water stroke," which occasionally killed in as sudden a manner as death was produced in this instance.

Dr. A. T. Thomson thought, had the patient perished from brain affection, the symptoms would have been more marked.

Mr. Roderick had examined a patient in Guy's Hospital that very day, in whom the cause of peritonitis was ulceration, which gave way, and allowed fœcal matter to be extravasated. No pain was present in this case to indicate the presence of ulceration.

Mr. Goodfellow had noticed, in cases of tubercular disease of the lungs, that the occurrence of inflammation of a serous structure was frequently simultaneous with the production of disease in similar structures, but in distant parts of the body. Thus, he had seen in these cases, pleuritis, peritonitis, and arachnitis, all occur simultaneously. Perhaps this fact might explain the absence of symptoms in Mr. Snow's case.

Mr. Smith thought that the debility produced in the system by the previous occurrence of pleuritis and the consequent adhesions, would explain the easy way in which the slight peritoneal inflammation destroyed life.

Mr. Verral, in illustration of the rapid manner in which intestinal inflammation occasionally proved fatal, related a case of "muco enteritis" occurring in a child five years of age, remarkably healthy, and which ran to a fatal termination in 18 hours.

Mr. Marson had seen a case of acute peritonitis as rapidly fatal, occurring in a man previously remarkably healthy.

Mr. Snow had seen death from peritonitis in cases where the mischief found afterwards was not greater than in the case he had detailed; he thought the child could not have died from the effusion of serum in the head without some very obvious symptoms. He believed that effusion, even of blood, in the brain, very rarely caused death in half an hour.

Mr. Streeter, in leaving the chair, made some judicious observations on the necessity of extending our examinations in the cases of children to the various organs of the body.

THE LANCET.

London, Saturday, February 29, 1840.

It was one of the grave charges brought against the system of Medical Relief, under the Poor-Law Amendment Act, that the medical officers were inadequately paid for their services. The unhappy discords, the keen competition, the scientific ardour of medical men, and the introduction which parish duty sometimes affords to better practice, had, before the advent of the New Law, reduced the remuneration to the lowest rate; and some practitioners were tempted to undertake the office of medical attendant to the parish, at an inadequate sum, upon the understanding that they should charge in the usual way for attendance upon non-parishioners. The parish authorities said,—"You must "attend our paupers for little or nothing, but "you are quite welcome to charge for the "sick paupers of other parishes, here under "suspended orders, the same as for your

"private patients. Look to the suspended "orders for remuneration." This was done in some instances under the old system; and the charges under suspended orders amounted to more than the stipulated salaries. The parishes that made the discovery, and threw the payment of their medical officers upon other parishes, flattered themselves, as much as the Blything Rector, upon their financial acumen; and only began to suspect there was something wrong, when the tables were turned, and they had to pay the bills for attendance upon their own paupers, under suspended orders, in other places. So long as the overseers' hands were in their neighbours' pockets, the parish was delighted; but when their neighbours returned the compliment, did as they had been done by, and rendered the trade reciprocal, the whole thing was found to be vicious, and immoral. The Poor-Law Commission of Inquiry was issued about the time that this light shone into St. George's, Hanover-square, and certain other metropolitan parishes. The inquirers into abuses found a rich banquet in the Bills for attendance under suspended orders. The "avarice" of the medical officers, and their "extravagant" bills, were brought prominently forward in the reports; but nothing was said of the amount of duty they performed, the number of persons and cases which they attended, or the value of the medicines they supplied, to say nothing of the time and skill which they brought to bear upon the great mass of a pauperised population.

The reduction of the poor rates appeared to have occupied the first place in the attention of the Commissioners; and they set about the task of stopping the small pensions and annuities of the paupers; diluting the workhouse dietaries, and reducing the medical relief in sickness, as eagerly as if their salaries depended upon the per centage of reduction in the amount paid for the relief, maintenance, and medicines of the poor. The remuneration of the medical officers was reduced. The system of tender, which had existed partially before, was generally introduced, or suggested by the Assistant Commissioners. The office of medical attendant to the poor was frequently knocked down to the lowest bidder. Mr. CHADWICK's Secretaryship was not advertised; the Assistant Commissioners did not send in tenders; the offices of the clerks and the lowest office-keepers in Somerset-house were not set up to Dutch auction; this species of indignity was reserved for the members of the Medical Profession. Their duties were so utterly unimportant. The lives and limbs of the poor—and nothing more—were entrusted to their charge!

Every honest practitioner in the country complained of the new evils, and declared that the salaries did not enable the medical officers to do their patients justice, or to afford them the medicines, time, and skill, which the diseases of wretchedness and poverty demanded. Inexperienced, reckless men,—the SHERIFFS, the WARDS, and the MERRICKS,—were, however, held *in terrorem* over the settled practitioners, and, where resistance was resorted to, inflicted upon the defenceless heads of the paupers: it lessened their numbers, and it reduced the rates in two ways.

The insufferable treatment of the poor, and the grievances of medical practitioners, were at last brought, temperately, without any exaggeration, or aggravation, under the notice of a Parliamentary Committee. All the facts were fully established. The inadequacy of the medical salaries was demonstrated, and every body, excepting the Rev. Mr. CLISSOLD, the reporter of the Blything Club, has admitted the truth of the demonstration.

Under the regulations of the Blything Club, and its new-fangled arrangements, a smaller number of cases was attended in one or two quarters of the year 1839, than had been attended in the year 1837, to which the parliamentary returns applied. The salaries remained the same; and it is anything but astonishing that the quarter's salary, divided by the number of cases, gave a higher rate of payment *per case* than was

deduced from the parliamentary returns; but it does create astonishment to see any one, with a particle of common sense,—not to say the rector of Bulcampe-house, turn round in the teeth of these facts, and declare that they establish the "utter fallacy" of the Tables framed by order of the Parliamentary Committee.

The Reverend Rector triumphantly quotes the terms of approbation employed by the Chairman of the Parliamentary Committee, and the testimony of Dr. KAY; he is naturally elated in showing that an "utter fallacy"—which escaped the sagacity of a Committee of the House of Commons—and evidence which Dr. KAY declared "did "afford grounds upon which to proceed to "adjust the medical arrangements in the "different Unions throughout the country," should have been reserved for detection and exposure in the depths of the Blything Union.

If the argument have any meaning it is this—that the amount of medical remuneration was understated. "Those returns," it is said, "represented the remuneration of "the medical officers to be less than it "really was." And how did that happen? "The cases," the reporter says, "included "every *frivolous applicant* to the medical "officers—every *fraudulent applicant* who "required medical relief, as a cloak for "other relief—and the mass that was drawn "into the vortex of medical pauperism, was "lost to the class of independent labourers "to which they belonged." This throws the "utter fallacy" of the calculations upon the medical returns; but the Reverend Reporter "disavows all intention of speaking "*otherwise than respectfully* of the medical "officers themselves," the parties by whom the returns were made.

The charge of utter fallacy is founded, as has been seen, upon an absurd misconception and misapplication of the facts in the Blything Union. We shall now show that the amount of remuneration was overstated, and not understated, in the Tables submitted to the Parliamentary Committee, and that the medical returns were sufficiently accurate for the purposes to which they were applied.

In dealing with the returns every possible source of error and exaggeration was distinctly pointed out to the Committee. The cases returned were reduced; the number of separate *persons* as well as *cases*, attended in the year, was ascertained. The medical returns were made up from books submitted every week to the Board of Guardians, the books specifying the *name* of every patient, and the *date* of every visit. The returns of the medical officers were collected by the clerks of the guardians. These were surely checks upon exaggeration. Then we happen to know that many cases were attended which were never entered at all in the books; and the errors from this side would certainly counterbalance the errors of reduplication.

Every "frivolous case," "every fraudulent" case, and every case occurring among "independent labourers, drawn into the vortex of medical pauperism," was legitimately entered in the medical attendance book. The guardians sanctioned the relief. The medical officers would not exaggerate the number of deaths occurring under their hands—medical officers never do—yet 6,205 deaths were returned in parts of eight counties, and the metropolis. The number of cases returned from the same Unions was 125,280; or 20 cases were reported to every death. Now the proportion of cases to deaths was low, if we admit that even one-third of the deaths, or 2,068, was the result of inadequate attendance and union physic, the 4,137 deaths will still imply, according to all the observations that have been published, little less than 125,280 cases. Hence we infer, that with the corrections suggested in the evidence, the medical returns did not exaggerate the number of cases, and that the rate of remuneration in 1837 was not understated.

The Appendix D to the last Report of the Poor-Law Commissioners furnishes a decisive reply to the random assertions

of the Blything Rector. It corroborates the facts submitted to the Parliamentary Committee, and shows, distinctly, that instead of understating the remuneration of the medical officers, the remuneration in 1837 was, as was designed, overstated—to obviate the possibility of cavil. The portions of the returns selected for calculation represented the rate of remuneration for Medical Relief at 2¾*d.* per head on the entire population. In 1831 the population of England amounted to 13,091,005, which would increase to about 14,314,000 in 1837; and the Appendix to the Report of the Poor Law states the amount paid for Medical Relief in the year at £131,452! The prodigious sum of £131,452 for attendance upon the paupers comprised in a population of 14,000,000! It would be *eight farthings and eight-tenths of a farthing* per head, while the calculations, founded upon the returns from eight counties and the metropolis, gave eleven farthings a head. Far from having understated the actual remuneration of the medical officers, the average, if applied to the entire population of England, would be 30 per cent. higher than the amount which was actually paid last year. At 2¾*d.* a head the remuneration would have been £170,000; while it was £131,452; so true is the assertion of the Rector of Blything, that the "returns represented the remuneration of the medical officers to be *less* than it really was."

The deaths of paupers, falling annually under the hands of the Union medical officers, according to the parliamentary returns, were more than 4 to a population of 1,000; the cases, 84 to a population of 1,000. At this rate, the deaths of paupers in England, exclusive of Wales, amount to 59,000 annually, and the cases treated, to *one million one hundred and ninety-six thousand!* For the journeys, the time, the medical skill, the drugs, and all the medical appliances, £131,452 were paid to the medical officers, under the present nefarious system. The medicines and medical appliances (exclusive of brandy and spirits of wine), for 13,258 patients at St. George's Hospital, (4,025 in—9,233 out patients), cost £3,208.* The cost price of medicines, reckoning nothing for the trouble of compounding, was £3,208. At the same rate, efficient medicines for the treatment of the 1,196,000 pauper cases, would have cost £202,300!!

The total amount of money levied in England, by assessment, March 25th, 1837-8, was £4,893,790; the money expended for the relief and maintenance of the poor, exclusive of medical expenses, was £3,770,052. The amount paid for medical relief, £131,452; the two items of expenditure making £3,901,504. The medical relief was 3.4 per cent., or one-thirtieth of the whole amount; while it was estimated, before the Parliamentary Committee, at 3.6 per cent. of the sum expended for the relief of the poor; another proof of the alleged understatement.

For the consequences and the calamities which have occurred under this arrangement, the country, and the medical profession, are indebted to the new system.

We hailed the Minute of the Poor-Law Commissioners, which were published last week, as an indication of a desire to do the Medical Profession justice, and to render the system of Medical Relief efficient. Will the Commissioners carry out the principles of that Minute, or treat the recommendation of the Parliamentary Committee with contempt, stultify themselves, trample upon the poor, deceive the just expectations of the Medical Profession, and gratify Mr. Chadwick—that meek apostle of starvation and *Pantagruel* of workhouses, who has preached down the food as well as the physic of the poor, and is destroying himself at the public expense (the martyr!) on the excesses of £1,200 a-year?

The Club in Dublin, which has been christened the "United Medical Club," is a sign of the times. The friends of medical reform have become overwhelmingly numer-

* Reports, 1834, 1835.

ous in that capital, and this club is an indication of the fact. It is found impossible to procure converts to the doctrines of the monopolists, and new means were wanted, if not to change the opinions, at least to silence the voices, of the reformers. A more apt name would be the "HOLD-YOUR-TONGUE-CLUB." "If you wo'nt believe, at least be "*silent*. Medical politics are not proper for "surgeons and physicians. The discussion "of alleged grievances engenders bad feel-"ing." "Come, now, my friend," says Mr. ABRAHAM COLLES, to a brother practitioner, "What good will medical reform do for you? "Your head is filled with foolish notions by "the press about your wrongs, and all that, "but if you wish to see maintained a hig "sense of honour and kindly feeling in the "profession, you will join our club, and "never mention medical reform again. "Come, you, and all of you, Whig and "Tory, Catholic and Protestant, have done "with agitation, and meet me and my col-"leagues on neutral ground, unconnected "with collegiate or corporate regulations. "Come to the UNITED CLUB. There you "will see all of us heads of the profession, "all the men in office, all the better classes "of practitioners; there we shall be so cour-"teous and affable, that it will be impossible, "after the shaking of hands, the polite at-"tention, the bland tones, and the tea and "coffee, to avoid feeling how odious and "detestable it is to talk of us as monopolists, "jobbers, nepotists, and apprenticemongers, "*out of doors*. No white lamb *in* the Club, "can become a black sheep out of it. Hear "the statements made at the reform meetings "and coteries, and in the reform petitions, "respecting our settled institutions, and the "excellent and venerable functionaries who "fill them, and then blush for the speeches "and signatures. A united medical club is "really *found to be necessary* to arrest medical "sedition, and maintain a higher sense of "honour and more kindly feeling amongst "us, such as ought to subsist among the "better classes of society. Our first principle should be, to *keep things as they are*, "and discourage that restless desire for "change which now prevails, those impious "wishes to pull down old institutions, and "build up on new models. The public are "not yet accustomed to look upon the me-"dical man as a politician, even in his own "affairs, and it is very doubtful whether you "would secure for yourself, under a Na-"tional Faculty of Medicine, the same re-"spect which has always been accorded to "you under our venerated College. In the "United Club every question of medical "politics will be *carefully* excluded. If "we are largely joined, we shall soon have "a paramount influence in Dublin; and the "same circumstances which will make it "*contra bonos mores* to agitate grievances in "the Club, will quickly stamp as a *bad* man "that member who talks medical politics "out of it. We know very well how these "things work. The advantage of such a "club to the medical men of Dublin will be "immense. The political activity of a small "portion of their body, in misleading the "public with regard to the government of "our medical institutions, will be effectu-"ally counteracted. The public shall be "taught to avoid such practitioners. They "will witness a most respectable club re-"pudiating *all* politics as unfitted for me-"dical lips, and they will pronounce, ac-"cordingly, in favour of our view of what is "right and becoming. Medical men should "be *purely social* beings,—Owenites in their "circles, having all things in common, except "offices and posts of honour,—all harmony "and quietness. Thus, while the club "wholly repudiates the supposition that it "is an anti-reform association, it will, by "enforcing *silence* upon the topics of me-"dical grievance, indirectly accomplish its "objects for the honour and welfare of the "profession; for no change ever takes place "in political government without previous "agitation and discussion. All assertions "to the contrary, whether in THE LANCET or "the 'Dublin Medical Press,' are false. "Our object is to promote that peculiar "sort of *good feeling* which will leave our

"hospital surgeons and collegiate professors "alone,—undisturbed in their emoluments "and advantages, just and unjust, and so "ensure the honour and respectability of "the medical and surgical profession,—two "properly distinct and long-divided sciences; "in short, maintaining, undiscussed, the "monopoly of the governing few, and the "rights and privileges of the subordinate "many."

Gentlemen of the medical club, this is your own tale,—the pleading of your own case. Can it possibly be successful?

We have already commented upon the three first Tables of Mortality for the Metropolis. The weather continued mild. The rainy south-west winds prevailed until the 18th of February. The effects of the cold on the mortality successively subsided in the three following weeks. The deaths, in the five weeks of the Table, p. 680, beginning with the coldest week, were 927, 916, 835, 818, 813; the deaths, from diseases of the lungs alone, decreased 110—or from 373 to 263; and the deaths of persons above 60 years of age fell from 244 to 174. The cold weather has again set in, and the deaths, registered in the week ending February 22, have risen to 855.

The *York Medical Society* has determined to publish a monthly Table of the deaths in the district of the York superintendent-registrar. But considering that a more frequent publication would be advantageous to the members (as in the case of an epidemic prevailing,) they have resolved to have a weekly report drawn up and placed in the reading-room of the hospital. The first weekly report, which lies before us, exhibits the causes of 26 deaths, in the same form as the Table for the Metropolis; 4 persons having died from scarlatina, 1 from small-pox, and 2 from fever.

The Society applied to the Registrar-General for permission to procure the returns—and the secretary states that they feel much indebted to him for his ready assent to their application. The example will probably be followed by the medical societies of other cities.

We are requested to state, with reference to the remark made by the Marquis of Normanby, last week, in presenting to the House of Lords the petition of the British Medical Association in favour of medical reform, that his lordship has informed the President of the Association, Dr. Webster, by letter dated the 20th of February, that, respecting its prayer, he "thought it right to suspend all "opinion as to the extent of the evil, or the "nature of the remedy, until the result of "that farther inquiry * should be known, "notice of which had been given in the other "House of Parliament."

THE HUNTERIAN ORATION.

February 14th, 1840.

Agreeably with a curiosity which now and then inspires me to see great men, on Friday last I formed one of the crowd who went to the College of Surgeons to hear the Annual Oration on the contents of the Hunterian Museum, and on the character and merits of its celebrated Founder, naturally expecting that a gentleman of distinguished scientific reputation, possessed of superior oratorical powers, and capable of explaining great truths and discoveries, such as are developed in the collection, with superior power and clearness, would be chosen for this important task; because the honour, the character, and the fame of the whole profession are staked by the "heads" of the College upon these occasions. The orator proved to be Mr. Joseph Henry Green.

When Mr. Green had advanced a little into his oration, I thought him clever at his

* To be made by the Select Committee of Inquiry into the State of Medical Education and Practice.

duty. I was seeing and hearing him for the first time, and was full of impressions in his favour. Report, I thought, had only done him justice. He seemed to be an able and accomplished professor of the collateral sciences which are numerously and beautifully interwoven with those of medicine. His deportment was, at first, dignified and reserved, but, as his address proceeded, his features and manner, in various parts, underwent different expressions of character; in some indicating self-confidence for the duty which he performed, in others, forfeiting that impressive influence which should rivet the hearer to the discourse. His voice became rough and inharmonious, and his delivery anything but enthusiastic; but as he advanced farther with his subject, he was seized with extraordinary fits of eloquence, and was urged onwards by a vivid imagination, until his hearers could no longer understand him, or derive benefit from his discourse. When he returned to an intelligible track, and his mind had recovered from the fatigues of its higher flights, he adorned his illustrations with scraps from the Latin, Greek, and French authors—indications of pedantry and weakness in his subject which were painful to the hearer. He recommended himself to the notice of a dignitary of the church, who was present, by frequent but ungracious and awkward repetition, of ill-chosen words, to impress on the members the fact, that there was a God, and that the organisation of the different kingdoms of nature, and the contents of the museum, afforded indisputable evidence of his argument. One might suppose, that he designed to point out and correct the existence of infidel opinions in the profession, and to exhibit to the Duke of Sussex, the church dignitary, and the judges, and other distinguished members of the bar who were there present, a low-minded condition in that profession. This was both impolitic and unjust.

After badly eulogising the memory of the great departed, he poured forth long and lingering strains of admiration and gratitude to the memory of one Professor COLEMAN (a relative of Mr. Green), whose great discoveries in physiology he deified next in degree to those of his immortal master, HUNTER. When upon this subject, I recollected that this highly-extolled Mr. COLEMAN left some years ago the legitimate rank of human for that of quadruped surgery, in which speculation he happily realised a handsome fortune. In an oration upon John Hunter it seemed *malapropos* to descant on the discoveries and character of his relation, of whom the extravagant praise might have been left to some aspiring veterinarian, on a future day, when the immortal COLEMANIAN orations. Mr. GREEN, however, established before the distinguished lawyers who were present, that horse and dog surgery, and the science of farriery, are on a level with human surgery. Having lost connection with the barbers, we may establish one with the farriers.

As Mr. GREEN proceeded, his earlier claims to respect and sympathy further disappeared. After this digression, the remainder of his oration was unintelligible, ridiculous, inflated in the highest degree, bringing to my recollection an appropriate anecdote. At the Central Criminal Court, Baron GURNEY once placed his claw on a conceited medical witness, who could not give his evidence excepting in a round-about technical form, with the sudden remark that men of real science were always plain and simple, and went at once to the facts. Baron Gurney was at the College on the 14th instant. I could well fancy the thoughts which were passing in his mind on the science and competency of the crack man of a proud and exclusive corporation. Every one seemed tired and vexed. Some uncourteously sneered; others obliviously snored; some subdued their laughter; others had it less at command; and an eminent lawyer, who sat on the left of Mr. Justice PATTISON, rubbed his hands most cheerfully when the orator pronounced the words, "and finally," the heralds of his conclusion.

The relative differences of knowledge which now exist in the different "grades" of the profession, are small indeed. The times are changed. The same fountains of information are free to all, and unless the offices in the College are thrown open to the members generally, for fair competition, the day will soon arrive when there will not be found a man within the narrowed precincts of the Council, whose talent will be sufficient to tempt the young men who are now in the course of medical

cultivation, to listen for one moment to the efforts of an Huntarian orator.

Not one word on the present state or prospects of the profession, or how the numerous body of members are to continue to be honoured, protected, and fostered, in the exercise of their professions, fell from the orator upon this sole occasion of intercourse between them and the Council. In our own institutions we are treated as *canaille*. In courts of law subjected to contumely and indifference. In the petty courts—where humble members of the profession sometimes seek to obtain the amount of their just and honourable earnings from a dishonest patient—butted, insulted, abused, beaten, and turned out. In consultation with the "heads" of the profession, unrespected and abased. Chemists, druggists, mineral-dentists, horse-doctors, herbalists, quacks, vagabonds of all sorts, enter the field against us with a better chance of remuneration, because we have yet left some strong attachment for the honour of our profession. Is it so with the church, the law, the mercantile and trading interests, or even with mechanics and labourers? No. The church is protected by the iron and sullen power of the ecclesiastic court; the law, in every grade, by its own jealous courts and both Houses of Parliament; trade, by the jury system, where fellow-tradesmen sit in protective judgment on its claims. To whom flies the medical man under oppression? He has no court, no parliament, no jury, to sympathise and aid him. He bears and forbears. The government of the profession is in the hands of enemies, not friends, whose interest it is to keep him a weak and "subordinate" man.

It is impossible to think of the College, even but once a year, without reflecting on these things; or to reflect on them without considering the remedy. All hopes are now reduced to one. Union in petitions to *Parliament* for redress, manifesting our abject and unjustifiable slavery. At the same time endeavouring to neutralise the secret intrigues and misrepresentations of the HALFORDS, the LAWRENCES, the GUTHRIES, and all that party, in private rooms and in the clubs, who represent to the influential statesmen of all parties, that we are nothing but levellers and destructives, and announce, that, if once emancipated, the strong towers of our art will be for ever destroyed. Such are the falsehoods of the corporators. Such are the slanders we have to combat. But Parliament, instantly addressed, may render us superior to them all. To Parliament, then, to Parliament with the petitions. Emancipation will reward that effort to be free.

A MEMBER OF THE BRITISH MEDICAL ASSOCIATION.

BRITISH MEDICAL ASSOCIATION.

Exeter Hall, February 14, 1840.

Dr. WEBSTER, President, in the Chair.

THE minutes of the last meeting were read and confirmed.

A letter was read from Mr. COLEY, of Bridgnorth, accompanied by a pamphlet on matters connected with the Bridgnorth Infirmary.

A letter was read from Mr. C. PREEDY, on the subject of quackery, which was referred to the Anti-quackery Committee.

Letters were also read from Mr. COOPER, of Hull, Mr. VALENTINE, and other gentlemen, on the subject of medical remuneration under the Poor-Law Amendment Act with complaints of grievances unredressed, when it was unanimously resolved,—

"That a communication be opened with the Poor-Law Commissioners to ascertain how far the alterations in their minute,* sent to the Association in July last, had been accomplished; how far they were meant to be carried out, and what other amendments (if any) were in contemplation respecting medical relief and the remuneration of medical officers."

The Committee appointed, at the last meeting of Council, to draw up a "model of a petition," presented it to the Council, prefaced by the eloquent address which we published last week with a copy of the petition, at page 811. Both were highly approved of and ordered to be printed without delay.

Some minor points of business having been transacted, the Council adjourned until Thursday, the 3rd March, at half-past seven, P.M.

THE MAGNITUDE OF THE CHEST may be a good index of the physical power of the individual. On this qualification a table was constructed by Dr. Balfour, while acting as district military surgeon in London, from the measurement of 1,439 recruits, whence it appears that the average circumference of the chest in this number is about 32½ inches; the maximum 37 inches; and the minimum 28 inches. Mr. Marshall suggests, that no recruit should be approved in the Army, whose chest does not measure 30 or 31 inches, even at the minimum height.

* See LANCET of last week, page 820.

MONOMANIA, SIX YEARS AFTER AN INJURY.

To the Editor of THE LANCET.

SIR:—In the 15th Number of the current Volume of THE LANCET, you have inserted a valuable letter from Dr. Mantell, elicited by the recent discussion on suicide at the Westminster Medical Society. His remarks are very judicious, and show that his capacity for research is not confined to the "wonders of geology." The following case will, in some measure, corroborate his statements, although, happily (the patient being still alive), it is deficient in the important point of post-mortem examination.

T. B., ætat 53, a married man, of industrious, moral, and temperate habits, has enjoyed good health all his life, and been very prosperous in business. Six years ago he received a severe blow on the vertex of the head, from the fall of the beam of a house, which stunned him, but from the effects of which he gradually recovered without the aid of medicine, leaving only occasional severe pains of the head, with a sensation of external compression. He continued his business (that of a builder) up to 1838, when his spirits began to fail him, attended with a disinclination to society, &c. In fact, his complaint soon became a species of melancholia. After a short period he was subject to paroxysms of indescribable terror, with suspicions of the good feeling of persons towards him, but not all weak in his intellects, or insane on other points. I need not mention the routine of treatment, for setting the case down as monomania, or as the "manie sans delire" of Pinel, it was simply sedative and watchful. He continued thus for some weeks, when his terror increased to such an extent as to excite the most ardent desire for death by his own hand. Being a religious man, he was shocked at this feeling, and, *at his own request*, I placed him in Dr. Finch's Asylum at Fisherton, where he remained until the suicidal mania had departed; but the paroxysms of distrust still annoy him, to some extent, more especially at nights, and it is most likely that he will again require restraint. I forward this case for two reasons:—

1stly, As illustrative of a (probable) lesion of the brain, preceding an attack of suicidal monomania six years, and temporarily curable by confinement; and,

2ndly, As affording the curious fact of a man desiring protection from the uncontrollable impulse of committing self-destruction. I remain, Sir, your obedient servant,

JOHN A. LUSH.

East Knoyle, Feb. 12th, 1840.

CASE OF CESAREAN OPERATION.

IN our last Number we related a case of Cesarean operation recently performed at Paris, by M. Paul Dubois. We carried the history of this interesting case to the 5th of February; since then we are enabled to add the following particulars:—

On the 5th the patient complained of general uneasiness, and at five o'clock, P.M., some stiffness was observed in the movements of the lower jaw. At six o'clock the masseter muscles were affected with violent contractions, and the woman was unable to drink. From this period the symptoms of tetanus were clearly established; the cause was in vain sought; the wound of the abdomen was completely healed, except at the inferior angle which had become painful for the last few days, and to which poultices had been applied for a slight excoriation produced by the discharge of pus; eight leeches were immediately placed behind the ears; the patient was put into a warm-bath, and an opiate lavement administered. She passed a quiet night, but the trismus continued.

6. Increased symptoms of tetanus; spasmodic contraction of the muscles of the neck; sixteen leeches were applied behind the ears; and as the patient was unable to swallow, large doses of opium were administered by the rectum. The patient soon fell into a state of narcotism, which continued during the night.

7. The stupor has been succeeded by violent agitation; the use of opium was suspended, and a grain of extract of belladonna given in lavement every half hour; a large vesicated surface was established on the neck by means of liquid ammonia, and dressed with half a grain of the acetate of morphia. After an hour a grain of the acetate was applied, and another grain after the third hour.

8. But little change in the patient's condition, although she seems to be more quiet; towards evening the intellectual faculties were, for the first time, disturbed, and she continued to wander during the night.

9. Intellect clear, but the tetanus persists with equal intensity; the neck is now bent on the left shoulder; fits of suffocation come on occasionally, but the extremities are still free. During the day the difficulty of deglutition increased, and the patient sank at 9 o'clock, P.M.

Post-mortem Appearances.

The abdominal wound was completely cicatrised at the upper twothirds; the inferior third had been kept open on purpose; the indicator of one hand, when passed into this part of the wound, penetrated between the walls of the uterus to the os tincæ, and was felt by the other index finger, passed

up through the vagina. The thoracic and abdominal parietes were turned downwards, so as to disturb, as little as possible, the relative positions of the viscera. On arriving, however, at the umbilicus it was found that the walls of the abdomen were firmly united to the viscera at that point, and on further examination several small abscesses were discovered in the false membranes; the uterus itself was closely adherent to the anterior wall of the abdomen, and was removed with it. Those parts were, therefore, examined by means of incisions made along their posterior surfaces. The original incision of the uterus had extended from the apex to the cervex, but in no part had the wound united; its edges were separately cicatrised along their whole line. However, the loss of substance, occasioned by the slight separation of its edges, was filled up by a fold of intestine, by the anterior wall of the abdomen, and by the posterior wall of the bladder. Thus the opening which had been made into the uterus was completely closed up, except at the lower third, as already noticed. The other viscera of the abdomen were free from alteration.

The spinal marrow was examined with the greatest care, but nothing discovered except a very slight and doubtful softening at one point. The vessels of the brain were much injected. M. Dubois was inclined to attribute this appearance rather to the narcotics which had been administered, than to the tetanic affection.—*French Lancet*, Feb. 13, 1840.

AMPUTATION OF THE NECK OF THE UTERUS.—TORSION OF THE ARTERIES.
BY M. AMUSSAT.

M. Amussat has recently shown, that torsion of the arteries is applicable to operations performed on the uterus.

Madame P., 32 years of age, married at the age of 20; had two children, and aborted once, five months before the commencement of her present illness. Since her accident, she was attacked with metro-peritonitis, and continued to lose blood from the vagina, from time to time. A month back she was examined by a medical man, who discovered the existence of some serious malady, and brought the patient to M. Amussat. The latter, also, having examined the patient, found, that the posterior lip of the uterus was greatly enlarged, and occupied by a fungous ulcer. It was, therefore, determined to extirpate the disease; and, on the 21st of January last, M. Amussat amputated the neck of the uterus in the following manner:—The patient was sustained by assistants, in the position commonly chosen for lithotomy; two hooks were then fixed in the tumour, being conducted along the index finger, and slight traction was employed, but the parts gave way, and it became necessary to fix them again on the anterior lip of the os tincæ. The neck of the uterus was now brought into view, and almost completely separated by a straight bistoury. An artery, which bled freely, was now twisted, and the section was completed with a curved pair of scissors. Cold injections were thrown up the vagina, but the hæmorrhage was very insignificant. Since the time of the operation the patient continued to do very well, and on the 28th, every prospect of a speedy recovery was entertained.

MEDICAL TALENT, NOT SCIENCE, ADVANCING.

Although the cultivators of medicine are so numerous, it is still a question whether the art be now in a progressive state. The more general opinion is, that medicine is advancing with a steady progress to perfection, but a few men, not undistinguished in science, maintain that there is no real progress, but only progression in a circle, that is, a constant return to the former position. But what is the fact? Is medicine truly progressive, or is it stationary? As regards medical hypotheses, we may readily adopt the latter opinion. We observe now the same restless search after first principles, which characterised the more ancient physicians, and started by their zealous inventors as irrefragably certain; while, with regard to new diseases, do we not find hints of almost every one in the older authors? If we turn our attention to remedies, we find much to discourage our boastings. If there be any diminution in the rate of mortality, it is attributable not to the increased power of medicine, but to those happy arrangements of modern society which have prevented the frequent occurrence of famine and pestilence, and have provided more perfect clothing and greater cleanliness. Chemistry has, indeed, analysed and combined various medicinal agents, and every now and then some bright idea has been elicited from the laboratory, but the *currus triumphalis* has been brief. If we inquire as to the actual power which medicine now possesses in controlling disease as compared with that of other times, we are hurried into nearly complete scepticism. And yet our knowledge of the animal structure and functions has received large accessions from morbid anatomy. We possess all the remedies of the ancients, and many new ones, and hence we must necessarily have more power in the cure of disease. But it appears to me that the principal improvement is, that a greater number of practitioners are now masters of the existing knowledge, and are (though not discoverers) intelligent and industrious ap-

pliers of the discovered truths. Formerly, knowledge was difficult of access, but it is now open to men even of ordinary minds and common-place habits.

There can be no doubt that the difference between the more experienced practitioner and others, consists mainly in the correctness of his diagnosis. It requires, indeed, no great skill to determine that one patient is afflicted with dropsy, that another has palsy, that a third is affected with fever, that a fourth suffers from dyspepsia. But what organic lesion has given rise to the watery swelling, what is the state of the brain indicated by the palsy, how are the vital organs affected in the fever, whether the dyspepsia is functional merely or organic,—these are questions which call for the skill of the accomplished practitioner. Upon the diagnosis will the treatment depend. The disease itself may have been ascertained, but the stage at which it has arrived requires also to be determined, for the treatment which was appropriate at one period may now be inert or detrimental.—*Abs. Mr. W. Brown, Ed. Med. Jour.*, Jan.

PATHOLOGICAL EFFECTS OF POISONOUS DOSES OF THE ERGOT OF RYE.

My experiments with the ergot of rye on dogs, appear to justify the following conclusions:—

1. That solutions of ergot injected into the arteries and veins affect chiefly the brain and the nervous system.

2. Both may be influenced together, coma more or less perfect, and paralysis appearing at once; or the spinal cord may be first affected, paralysis immediately resulting, and the brain participate subsequently, the comatose period being much delayed.

3. Its effects differ according to the strength of the solution employed. In a concentrated form it appears to paralyse the system instantly, no resistance to its effects being discernible. A milder preparation causes, for a time, great excitement; the nervous energy is roused, but sinks eventually under the influence of the poison. A much diluted solution, on the contrary, produces, at first, no apparent effect, but seems, by a very progressive sedative action, to deprive the system of its energy, and so to exhaust it of life.

4. Its effects are produced more speedily when introduced by the arteries than by the veins. The brain then appears to be first affected, and the spinal cord subsequently; and, in some instances, stupor to a considerable extent may prevail, and yet the sensibility of the extremities be little impaired.

Ergot, also, appears to exert a deleterious influence upon the system through the medium of absorption, and its activity seems to be correspondent with the relative absorbent power of varied tissues, or with the sensibility of different membranes.

I have injected strong solutions of ergot into the cavity of the pleura without any injury following it. The animals have, generally, survived the operation for two or three days; and the inflammatory state, ever apparent, has prevented my drawing any satisfactory inferences.

Its injection into the cellular tissue of animals, which experiment I have often tried, has invariably led to the formation of purulent matter; in some instances circumscribed within a cavity, bounded by parietes apparently formed of solid purulent matter, easily broken down, and feeling to the touch like soft cheese. In other instances it has been diffused throughout a great extent of tissue, burrowing amongst the neighbouring muscles, and forming a number of cavities, communicating finally with one common cyst.

The purulent matter thus formed has always been of a very offensive, and, apparently, unhealthy kind.

From other experiments I may infer, that ergot is capable of exciting a local irritation upon the parts with which it comes into contact; determining, when in the stomach, nausea, vomiting, and hiccup; when in the rectum, tenesmus; and, by sympathy, dysury and priapism.

Its influence upon the brain and spinal cord is well expressed, on the latter especially; but it is evident that a considerable dose is required for the development of any active results.

It may also be observed, that rabbits are much less influenced by the ergot than dogs; a circumstance, perhaps, attributable to two causes: 1st, vegetable diet being the one allotted to, and therefore best suiting them; and, 2ndly, because they are able to bear a much greater quantity of narcotics and other substances of that class than carnivorous animals, the influence of such medicines upon them being of course greatly modified by idiosyncrasy.—*Mr. Wright in Edin. Med. Journ.*, Jan.

PRESERVATION AND TESTS OF ERGOT OF RYE.

In a moist atmosphere it is extensively preyed on by insects, and the active property of the drug is gradually lost. If powdered before exposure to moist air, it very readily grows damp, and spoils much sooner than when whole, being in a few days completely covered with animalculæ. Roll-sulphur has been suggested as a preservative; but I have never discovered the least advantage in its employment. Camphor intermixed with even powdered ergot completely prevents the formation of animalculæ; but the particles become moist,

semi-pellucid, and mouldy, the activity of the substance at the same time diminishing. It is best preserved in a warm dry place, after having been wrapped in absorbent paper, and secured in a well-stoppered bottle. It is important to distinguish between a good and a bad specimen. If the ergot be clear and smooth on the surface, not powdery, of a deep purple colour, neither totally black nor light brown, having a full strong odour, breaking clearly, exhibiting a pink blush interiorly, unpunctured. The sample should be broken, and, perhaps, tested, for Dr. O'Shaughnessy once analysed a specimen of alleged ergot, which proved to be nothing more than plaster of Paris artfully coloured. (LANCET, 1830—31, vol. i. p. 638.) And I have several times observed the ergot to be adulterated with common paste; a fraud, I suspect, of very frequent occurrence, though not of very easy detection; for the process of baking generally modifies the starch, so that it can scarcely be indicated by iodine. The best way of testing it is to powder the suspected sample, and, after moistening with water, to triturate it gently with iodine, when, if a blue colour results, an impurity may be credited. If this process be not satisfactory, the specimen may be digested in ether; if the ergot be genuine, a yellowish oily solution will result; if impure, little change will take place.—*Mr. Wright, Edin. Jour.* Jan.

THE ARMY.—Of the value of the two classes as soldiers, recruits from the agricultural class are held in the Army to be more trustworthy than those from trades and manufactures. Agricultural labourers generally enter the Army in consequence of some family difficulty or discord; while recruits who are enlisted in the manufacturing districts are frequently idle and dissolute, and require all the means in the power of officers to correct their intemperate and vicious habits. Mr. Marshall mentions, as an evidence of the improved condition of the people, that in one district, upon an average, from one-fourth to one-third who enlist, pay the smart-money, and all the other expenses which have been incurred on their account, rather than complete the enlistment before a magistrate.

KING'S COLLEGE.

Dr. GEORGE BUDD, Physician to the *Dreadnought*, has been elected Professor of Medicine in King's College and Physician to the Hospital; and Mr. FERGUSSON, of Edinburgh, Professor of Surgery and Surgeon.

BOOKS RECEIVED.

On Diseases of the Bladder and Prostate Gland; with Plates. By W. Coulson, Esq. Second Edition. Longman and Co.: London, 1840. 8vo. pp. 258.

A Treatise on the Causes and Consequences of Habitual Constipation. By John Burne, M.D. Longman and Co.: London, 1840. 8vo. pp. 257.

Anatomical, Pathological, and Therapeutic Researches on the Yellow Fever of Gibraltar of 1828. By M. Louis. Translated from the Manuscript by G. C. Shattuck, jun., M.D. Little and Brown: Boston. Churchill: London, 1839. 8vo. pp. 374.

Treatise on the Ear, including its Anatomy, Physiology and Pathology, &c. By Joseph Williams, M.D. Churchill: London, 1840. 8vo. pp. 256.

A Compendium of the Materia Medica and Pharmacy, &c. By J. H. Lane, M.D. Churchill: London, 1840. pp. 308.

Aphorisms on the Treatment and Management of the Insane, &c. By J. G. Millingen, M.D. Churchill: London, 1840. pp. 202.

A Manual on the Bowels, &c. By James Black, M.D. Longman and Co.: London, 1840. pp. 240.

TO CORRESPONDENTS.

Received the communications of *Dr. Marshall Hall, Mr. T. Antisell, Mr. Finucane, Mr. Crawford, Dr. O'Beirne, and Mr. J. B. Steele.*

W. B.—Dr. ARNOTT has more than once regretted the delay which has occurred.

Dr. Lynch does not understand the views of THE LANCET on medical reform; but not having this week space to devote to the discussion of his letter of the 18th inst., we must at present simply acknowledge the receipt of his remarks on what he supposes to be our opinions, and the superiority of his proposals for legislation on the subject.

The case from the Bridgnorth Infirmary, the paper of *Mr. Romer*, and many others, next week.

ERRATA.—In the last Number, page 790, col. i., line 67, for "pile," read *piles;* col. 2, line 45, for "of mucous," read *of the mucous;* page 791, col. 2, line 57, for "ducts of," read *ducts at;* page 792, col. 1, line 5, for "inside," read *in the side;* same page and col., line 27, after "body," insert *although its effect was.* We omitted, also, Dr. Baxter's address, which is 2, Middlesex-place, Bryanstone-square.

Page 805, line 2, col. 2, for "vibration," read *irritation.*

Showing the No. of Deaths from all Causes, Registered in the 5 Weeks, ending Saturday, Feb. 15, 1840:

Causes of Death.	January. 12 to 18	January. 19 to 25	January. 26 to Feb. 1	Feb. 2 to 8	Feb. 9 to 15	Weekly Av. 1838, (corrected.)
Small-Pox	3	8	12	5	6	76
Measles	20	10	17	16	13	12
Scarlatina	51	45	31	33	46	30
Hooping-Cough	21	37	20	15	20	42
Croup	5	6	3	5	5	7
Thrush	4	3	8	4	9	6
Diarrhœa	5	6	6	6	6	8
Dysentery	1	2	2	1	2	2
Cholera	....	....	1	....	....	.3
Influenza	3	3	3	....	....	1
Typhus (1)	27	30	28	31	30	82
Erysipelas	3	5	4	3	3	8
Syphilis	1	....	....	....	....	1
Hydrophobia	....	....	....	....	....	.2
TOTAL	144	157	145	119	140	276
Cephalitis	11	12	10	9	10	11
Hydrocephalus	36	31	33	35	26	35
Apoplexy	13	26	19	25	18	20
Paralysis	21	19	10	17	13	15
Convulsions	56	54	44	37	32	68
Epilepsy	3	3	3	7	3	4
Insanity	2	....	1	1	....	1
Delirium Tremens	1	3	2	....	....	1
Dis. of Brain, &c.	16	8	11	7	13	6
TOTAL	159	156	133	139	144	161
Quinsey	2	1	2	....	2	2
Bronchitis	7	22	8	14	14	9
Pleurisy	1	....	3	4	1	2
Pneumonia	90	69	64	58	55	74
Hydrothorax	16	11	1	4	4	6
Asthma	66	54	45	29	35	29
Consumption	106	127	139	139	141	152
Dis. of Lungs, &c.	25	18	15	13	11	11
TOTAL	373	302	276	261	263	285
Pericarditis	2	1	1	1	....	.3
Aneurysm	....	....	1	1	....	.5
Dis. of Heart, &c.	28	21	16	20	20	15
TOTAL	30	22	18	22	20	16
Teething	18	16	11	12	18	15
Gast.—Enteritis	15	13	11	15	14	18
Peritonitis	....	1	....	....	4	1
Tabes Mesenterica	3	2	3	....	3	3
Ascites	2	3	....	1	1	.3
Ulceration	....	3	3	....	....	1
Hernia	2	3	....	2	....	2
Colic or Ileus (5)	....	1	1	2	2	4
Dis. of Stomach	5	6	5	5	6	4
Hepatitis	1	2	2	....	1	1
Jaundice	3	1	1	1	3	2
Dis. of Liver, &c.	2	3	7	5	6	8
TOTAL	51	54	46	43	58	59
Nephritis	....	....	2	1	....	.5
Diabetes	....	1	1	....	....	.4
Stone	....	2	1	1	3	.4
Stricture	....	2	....	....	....	.6
Dis. Kidneys, &c.	3	2	2	4	3	3
TOTAL	3	7	6	6	6	5

Causes of Death.	January. 12 to 18	January. 19 to 25	January. 26 to Feb. 1	Feb. 2 to 8	Feb. 9 to 15	Weekly Av. 1838, (corrected.)
Childbed	6	7	11	2	7	8
Ovarian Dropsy	....	....	....	....	....	.3
Dis. of Uterus, &c.	1	2	2	1	1	2
TOTAL	7	9	13	3	8	11
Rheumatism	1	1	4	3	6	4
Dis. of Joints, &c.	7	6	4	2	4	4
TOTAL	8	7	8	5	10	8
Ulcer	2	1	....	1	....	.4
Fistula	....	1	....	1	....	.4
Dis. of Skin, &c.	....	2	....	2	....	.4
TOTAL	2	4	....	4	....	1
Inflammation	5	5	10	5	5	19
Hæmorrhage	2	2	5	2	....	4
Dropsy	30	32	36	19	31	35
Abscess	2	2	2	5	4	4
Mortification	3	3	4	6	4	4
Scrofula (12)	4	2	....	3	2	1
Carcinoma	4	9	6	12	9	6
Tumour	2	....	....	1	1	1
Gout	....	....	1	1	....	1
Atrophy	1	9	....	2	4	4
Debility	24	17	23	23	17	12
Malformations	....	....	..	4	....	1
Sudden Deaths	17	15	22	14	13	13
TOTAL	103	96	109	99	90	105
Old Age	91	76	61	79	54	82
Intemperance	....	....	....	....	....	.4
Privation	....	....	1	....	1	.6
Violent Deaths	26	21	15	19	15	27
TOTAL	26	21	16	19	16	28
Causes not Spec.	....	5	4	1	4	13
Deaths, all Causes	907	916	835	818	813	1051
No. of Week	2	3	4	5	6	....

1840.	Ages. 0 to 15	15 to 60	60 & upwards
Jan. 12th to 18th	392	361	244
„ 19th to 25th	384	302	230
„ 26th to Feb. 1st	360	291	182
Feb. 2nd to „ 8th	346	278	194
„ 9th to „ 15th	356	282	174
Weekly Average, 1838	484	365	199

	Estimated Pop. 1840.	Jan. 12 to 18.	Jan. 19 to 25.	Jan 26 to Feb. 1.	Feb. 2 to 8.	Feb. 9 to 15.	Weekly Av. 1838.
West Districts	308,921	160	172	166	125	98	162
North Districts	414,456	170	163	157	152	145	182
Central Districts	369,722	230	192	187	157	172	206
East Districts	411,634	216	207	200	167	190	249
South Districts	450,265	221	242	183	217	208	249
	1,955,000	997	916	835	818	813	1,051